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ABSTRACT

This document provides summaries of the conference organization, opening speeches, election of the chairperson, 4 presented papers and 11 contributions, conclusions, and recommendations. The following papers are presented in full in the appendix: (1) "Design and Production of Educational Materials for the Modernization of Teacher Training in the Szombathely Teacher Training College" by Sandor Orosz; (2) "Notes on Educational Technology and the Use of Videotechniques in Teacher Education in Sweden" by Christer Brusling; (3) "The Use of Educational Television in Teacher Training in the European Socialist Countries through the Example of the German Democratic Republic" by Hans-Georg Heun; and (4) "Main Trends in Educational Technology and the Use of Video Technique in the West European Countries" by Walther Zifreund. Additional contributions (also appended) examine the following topics: television notes in educational science; the electronic classroom of the Maribor Pedagogical Academy; analysis of critical incidents in teaching; use of audiovisual techniques and educational technology in the classroom and in teacher training; unification of methods and educational technology for teacher training and inservice training with video techniques and computer systems; developing pedagogical abilities using video at the Szombathely teacher training college; the instructor experimental program for developing pedagogical abilities with video in vocational training; using the videorecorder in teaching didactics; use of videorecordings in higher education and teacher training in East Germany; and use of technology in the training of future teachers. (LMM)

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REPORT
ON THE
INTERNATIONAL CONFERENCE ON
TECHNOLOGY IN THE SERVICE
OF TEACHER TRAINING
(WITH SPECIAL REGARD TO THE USE
OF VIDEO TECHNIQUES IN PRE-SERVICE TRAINING)

ORGANIZED WITH THE SUPPORT OF UNESCO
Szombathely, 5–10 October, 1981

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HUNGARIAN NATIONAL COMMISSION FOR UNESCO
NATIONAL CENTRE FOR EDUCATIONAL TECHNOLOGY (OOK)
SZOMBATHELY TEACHER TRAINING COLLEGE

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REPORT

on the International Conference on Technology in the Service of Teacher Training /with special regard to the use of video techniques in pre-service training/

Sponsored by Unesco, the Hungarian National Commission for Unesco, the National Centre for Educational Technology and the Szombathely Teacher Training College organized an international conference in the topic "Technology in the Service of Teacher Training" in Szombathely between 5th and 10 th October 198[illegible].

The objectives of the conference were as follows:
To map up the situation regarding the utilization of technical equipment, and video techniques in teacher training in Europe; their role in its modernization. To exchange information, ideas, and know-how on educational technology, especially in the field of video techniques used in teacher training.
To demonstrate the video system of the Szombathely Teacher Training College in operation, comparing it with other working models in Europe.

I. Organization of the Conference

The idea of organizing the conference arose in 1979, but the conditions for its organization were realized in the autumn of 1980 - the spring of 1981. Operative work was started in November 1980, the draft programme, the list of participants to be invited were drawn up and submitted to Unesco for approval. The experts of the conference were requested to come and the preliminary invitations were sent out in the spring of 1981.
Owing to illness and official engagement the requested experts - Prof. Dr. Walter Schöler /Klagenfurt, Austria/, dr. Bernhard Bierschenk /Malmö, Sweden/ and Prof. Dr. N. P. Kalasnikov /Moscow, Soviet Union/ could not participate, therefore with the approval of Unesco Prof. Dr. Walter Zifreund /Tübingen, GFR/, Dr. Hans-Georg Heun /Berlin,

GDR/ and Christer Brusling /Göteborg, Sweden/ were requested to do expert work relating to the regions.

Besides Hungarians, experts from the following countries sent applications for participating at the conference: Austria, Bulgaria, Finland, German Democratic Republic, German Federal Republic, Malta, Romania, Soviet Union, Sweden, Ukrainian Soviet Socialist Republic, United Kingdom, Yugoslavia.
Unfortunately owing to unforseen difficulties the experts did not arrive from Malta, Romania, the Soviet Union and the Ukraine.

The list of participants can be found in Appendix No. 1. The Conference was organized between the 5 th and 10th October 1981 at the Szombathely Teacher Training College according to the programme in Appendix No. 2.

II. Welcoming speech of László Szalay

László Szalay, general director of the Szombathely Teacher Training College greeted the conference as follows:

Ladies and Gentlemen, dear Guests!
In the name of one of the oldest towns of Hungary and its youngest teacher training college I would like to welcome you as the head of the institution housing the conference. The town of Szombathely is 1938 years old if we take into consideration the settlement Savaria which stood here. But teacher training in Szombathely looks back on a past of just over 20 years. Experiments on the use of video technique have been going on for 13 years here. It is due to these experiments that at the proposal of Unesco we have the honour of having the Szombathely acheivements taken into account when this meeting discusses the pedagogical endeavours of the end of the 20th and beginning of the 21st century that are evolving before our eyes. We set the experience, results obtained so far before you with certain anguish.

What is the reason for this anguish? The video equipment of the institution that we wish to show you was set up relying on experience gained both at homd and abroad in the utilization of modern technology in higher education. Owing to our situation, however we did not try to attain our pedagogical objectives with equipment systems bought complete from industry /which we could not have done anyway because of our financial resources/, but from our own force, using the relatively modest funds at our disposal, starting out from the simplest, step by step we developed this taking into consideration the possibilities offered by the technical revolution, as a result of over a decade of the teamwork of our pedagogical and technical staff. Our system cannot be regarded as finished or complete even now. In the course of our research-development work we have acknowledged from the start that: in transmitting knowledge even the most modern technology cannot replace the teacher, or make his role unnecessary. The sole purpose of the technical system - that has revolutionarized school today and will do so even more tomorrow - which in itself has enormous importance is that it helps increase the effectiveness of teacher training. It saves time and energy for the individual acquisition of knowledge. Makes the pedagogical processes that are harder to grasp more vivid. Develops the teaching ability of teacher trainees.

Our technical equipment verified our expectations. It proved that video technique makes possible a large mental concentration by recording the work of invited lectures, School Television and national television programmes as well as making recordings of our own instructors and students. It has been proved that this concentration on the one hand increases the level of training, on the other through the exchange of experience and media it helps establish cooperation with colleges having similar training tasks.

It gives us a very great pleasure that as a result of the international conference the widespread national cooperation may enlarge and that our experiments can be confronted with your valuable experience so that we may be enriched not only with Hungarian but international impulses as well. We think it would be desirable if on the basis of what has been seen and discussed at Szombathely recommendations were to be drawn up for the competent ministers of education.

Dear Guests!

I would like to quote Attila József, the great Hungarian poet of our century:
"To arrange our common things at last. This is our work and not scarce either."
In our case "common things" are changes made on the school of the future. The primary condition for this is to change the teacher. We must train highly qualified teachers who are able to transmit this knowledge with the help of methods demanded by the age and in the possession of methodological knowledge to introduce their students into the process of independent acquisition of knowledge. This conference in Szombathely is destined for the perfectment of this common thing of ours. As your host allow me to greet the participants of the conference:

> Mr. Andri Isaksson, Unesco network coordinator, prof. Chister Brusling, from Göteborg University, Dr. Hans Georg Heun, from the Humboldt University in Berlin and prof. Dr. Walter Zifreund from Tübingen University, and our international experts: representatives of Austria, Bulgaria, Finland, the GDR, Malta, Romania, Soviet Union, the United Kingdom and Yugoslavia who accepted our invitation.

In the name of all of us I would like to greet Mr. Imre Miklós, head of department of the Hungarian Ministry of Education and Mr. József Bendik who is representing the Hungarian National Commission for UNESCO, Dr. Sándor Nagy head of department of the Eötvös Lóránd University in

Budapest and Mr. Ferenc Genkwein, general director of OOK, our partner in organizing this conference. I would like to greet our Hungarian Guets. I wish you much success during your stay in Szombathely. I hope the days we spend together will primarily bring professional results, but at the same time despite the very short time available will open a window on a small part of the host country, give something of its past and present.

Referring to the document sent previously allow me to propose Dr. Sándor Nagy, head of department of the Eötvös Lóránd University in Budapest to be the chairman of the conference.

III. Opening speech of Imre Miklós

Imre Miklós, ministerial counsellor opened the conference on behalf of the Ministry of Education:

Esteemed members of the conference!

In the name of the Ministry of Education of the Hungarian People's Republic I would like to welcome all the participants of the conference "Technology in the service of teacher training."
I would especially like to greet the representatives of the Unesco Secretariat in Paris and the Hungarian National Commission for Unesco, the invited experts and the delegations of the participating countries.
It is an honour for us that they have accepted our invitation and are participating at this first Hungarian conference on teacher training.
Here in the Hungarian People's Republic the modernization of the system of public education is considered as extremely important. One of the basic factors of this is the optimalization of teacher training. All over the world there are many ideas about and approaches to modernisation. There are some who see a possible solution in increasing the training period, others see it in the re-structuring of the curriculum or in integrating the

subject matter. We are convinced that one of the most important possibilities for modernization is assured by exploiting the internal reserves of the actual system. We regard the development of the methods and aids of teacher training as part of these reserves.
Based on the above considerations several experiments were started in our teacher training institutes over the past decade. The ministry has strived to furnish the teacher training colleges and universities with sufficient basic equipment. It has made provision so that teacher training institutions should not only make technical media for themselves, but according to a rational division of labour they should be specialized and supply other institutes as well. So for example the Nyiregyháza Teacher Training College produces visual media and the Szombathely Teacher Training College prepares video recordings - together with the best specialists - that can be used in most teacher training institutes. We are in an advantageous situation in Hungary since as a result of the cooperation between Hungarian Government and Unesco, the National Centre for Educational Technology was established and is effectively working. Its main function is to help public education, teacher training and in-service training in training and further training in educational technology, in the design and distribution of the necessary media in close cooperatiun with the universities and colleges.

Nowadays mainly smaller countries would not be able to solve on their own tasks like this requiring enormous financial and individual potential. The present conference also means a joint effort towards solving these common problems.

We know that in other European countries different endeavours have been made to modernize the methods and aids of teacher training. No doubt initiatives similar to ours can be found in several countries, but there are others that seek for solution in a different way. It gives us a very great pleasure that Unesco has made possible the organization of this conference where competent experts from different European countries read papers on the utilization of modern technical equipment and media in teacher training.

We hope that there will be an active discussion in the topic between the participating foreign and Hungarian delegates.

We firmly beleieve that the papers and discussions will help clear up the unsolved problems. At the same time we hope that the conference will not only serve development but will bring the participating experts closer to each other even beyond this common thinking. We are convinced that this conference will mark an important step forward in the theoretical and practical questions of the production and utilization of technical media in teacher training.

I would like to ask the esteemed participants to do their best for serving this objective so that the recommendations of the conference concluding its results can help the further development of the methods and aids of teacher training in every country.

Esteemed members of the conference!

On behalf of the Ministry of Education allow me to wish everybody a useful conference in a sincere, open atmosphere and a pleasent stay in Hungary.

The introductory lecture of the conference was presented by ANTTI ISAKSSON, CODIESEE network coordinator from Unesco:

UNESCO AND EDUCATIONAL TECHNOLOGY IN TEACHER TRAINING

IV.

Mr. ANDRI ISAKSSON presented the introductory lecture of the Conference on Unesco and educational technology in teacher training. By way of introduction he emphasized that the innovation of content and methods are equally important elements of modernizing teacher training. Unesco is pursuing the study of advanced techniques and endeavours to promote the development of appropriate or suitably adapted educational technology. He also stressed that the teacher still has an important role.

Naturally Unesco is concerned with the use of educational technology in teacher training and the in-service training of teachers. So far the latter has been the main focus as Member States frequently asked for assistance in the further training of teachers in implementing educational reforms.

The subject of the present conference is how to use educational technology as an aid in teacher training; Unesco Secretariat feels this is an important problem and welcomes it as a useful initiative and regards this conference as a cooperative forum dealing with innovation and held in the enlarged context of CODIESEE.
/The text of the lecture can be found in Appendix 2./

V.

The members of the Conference elected the Chair:

Chairman:	Prof.Dr.Sándor Nagy /Budapest, Eötvös Lóránd University/
Vice-chairmen:	Margaret Jensen /United Kingdom/ Prof.Dr.Erkki Komulainen /Finland/

and the Editing Committee:

Rapporteur:	Prof.Dr.Sándor Orosz
Vice-rapporteur:	Dr.Pál Szücs
members:	Prof.Erkki Komulainen /Finland/ Aleksandr Panajotov /Bulgaria/ Prof.Dr.Walter Zifreund /GFR/

The chairman and vice-chairmen presided over the conference alternately.

VI.

The following papers were presented at the Conference /Their complete text can be found in appendix No.3,4,5 and 6/:

SÁNDOR OROSZ gave account of the following under the title "Design and production of educational materials for the modernization of teacher training in the Szombathely Teacher Training College":

The college has given an emphasis to the utilization of video techniques in teacher training since the beginning of the 1970's. After systematic preparation research was started in 1976 with the aim of examining the possibilities of setting up an up-to-date but economic video system, the conditions of designing and producing videorecordings. Theoretical and practical knowledge was obtained in director's and operator's work, experiments and evaluation was conducted on the pedagogical usability of the videorecordings produced. As a result of the development of the technical system the video centre of the training school was constructed. Through observation rooms this unit makes the traditional class visiting possible without interfering with the pedagogical process that can simultaneously be recorded on video.

The college TV studio was designed as a complex system rendering possible the implementation of national tasks besides the local ones. The following equipment are at disposal for making recordings:

a, one camera recording and playback unit,
b, reporter videorecorder set,
c, multicamera black and white mobile system and
d, complete colour studio.

For editing recordings:

a, semi-automatic editing system for editing recordings on tape and
b, casette type automatic editing set.

For playing back:

a, central playback unit that is connected to 18 classrooms and study rooms,
b, mobile playback units.

Research on the scientific, pedagogical, psychological conditions of designing and producing video recordings yielded manysided results. Due to the control provided by pedagogical practice and to theoretical research started in the meantime, work is becoming more systematic and the professional and technical quality of recordings produced and used in teacher training is improving.
A possible classification of videorecordings produced at the college and used in teachereducator training can be seen in a diagram. /Appendix 3./

In Teacher training the confrontation of the trainee with himself is important, so for a few years now school practice has been organized in such a way that every teacher-to-be faces himhelf on a videorecording on at least one occasion. A large variety of recordings are produced at the college studio. The recordings are mainly pedagogical and subject pedagogical and there are a few dealing specifically with psychology. Originally large numbers of recordings for demonstration, showing the

whole process were produced. Nowadays more and more recordings are produced with the function of objective "confrontation" control. Subject teachers like to use video technique for teaching methodology, developing pedagogical skills. Two special types of the classical micro-teaching has been created, one serving students of physical training, the other choir-master training. The instruction recordings transmitting theoretical knowledge were prepared on a very high level.
An experiment in higher education has been concluded with the learning packages on choir leading, but the extension of this to other fields in the near future is inspired by high quality recordings.

It has been proved that multifunctional, poliadaptive, well edited phase and process recordings with complex information are effective.
The lecturer demonstrated the video activity of the college with tables. The paper was supplemented by abstracts from different videorecordings. A visit to the college and training school as well as lectures and seminars made the acquaintance with the work carried on in Szombathely more complete.

CHRISTER BRUSLING presented a paper entitled "Notes on Educational Technology and the Use of Videotechniques in Teacher Education in Sweden":
While at the beginning of the seventies he participated in a microteaching programme as a psychologist, during the seventies educational technology had almost vanished from the scene in Sweden. In the light of this three questions were raised and answered by him:

1. What were the reasons for the wide adoptation of educational technology ten to fifteen years ago?

In the sixties in Sweden the educational system was expected to contribute to economic growth. In order to achieve this teachers had to be strictly directed and controlled. Microteaching in teacher education was intended explicitly to rationalize expensive practice teaching.

Harmony prevailed between the basic views about knowledge and pupils in the official curriculum of the traditional school and the behavioristic educational technology, even though there were certain contradictions in the curriculum between the humanistic and mechanistic views. In the nine year comprehensive school the problem with the heterogenous classes was to be solved by individualized teaching, so great expectations were held for educational technology and programmed intruction. There were expectations of being able to increase the number of pupils in the groups and reduce the costs. Educational development was centralized and educational theory was transmitted to practice by way of educational technology.

This was the rising phase of educational technology in Sweden. Essentially it was expected to solve school problmes.

2. Why did educational technology disappear from the scene?

In the beginning of the seventies the ability of educational technology to solve problems in school was questioned. Programmed instruction did not succeed in fulfilling hopes, it was not possible to rationalize away the teacher, large groups did not work as intended, pupils having reading and writing difficulties did not manage the programmes. The concept was revised and as a result of this from 1975 all six year old children had to attend preschool. Its set of tasks was based on cognitive developmental psychology, and the key word was dialogue. This became the basis of the new curriculum, appearing in 1980. It regards the pupil as an active, creating subject, together with the teacher taking part in educational work. The training of preschool teachers was recommended according to this concept, which naturally had an influence on teacher training in general.

This change is also reflected in the topics of educational science research.

When preparing the revision of the curriculum of the comprehensive school they made a break with the so far prevailing centralism of school administration. From 1982 the local possibilities to engage in educational development will be increased, local schools will have more influence. This situation may lead to the growth of an educational technology based on practical knowledge. The relationship between school and society was focused in the educational debate, the contradiction between theory and practice was revealed. As for microteaching there was growing concern about teaching skills, the lack of strategies for organizing the use of the skills and whether the opportunities offered by the videotechnique were really exploited. To be useful microteaching demanded clearly stated objectives and a convincing theory both of which was lacking. An opinion came to light that there is a tendency among teachers to avoid working conditions which could eventually mean accountability.

3. What conclusions could be drawn from this history?

As Travers points out there are and have always been technologies without a scientific basis. An educational technology could consist of codified and reflected teaching experiences, but these are scarce in number as teachers' working conditions maintain an individualistic approach to teaching. The uncritical acceptance of new ideas is wrong, it is necessary to compare them with collective experiences. Technologies thus created would certainly, differ from behaviorictic educational technology. Teachers decide on accepting or rejecting the proclaimed tehnology on the basis of personal criteria.

Microteaching is necessary, although its integration with other elements in teacher training is a problem. Many have voiced arguments to include cognitive variables in microteaching research. The possibilities of using videotechnique in investigations of teacher cognitions, the inquiry of cognitive processes is important.

There were some further statements on North-European experiences, then he asked the Finnish colleagues to add some comments /see contributions/.

HANS-GEORG HEUN read a paper on "The use of educational television in teacher training in the European socialist countries, presented through the example of the GDR":

The European socialist countries began using videotechnique in teacher training at the end of the 1960-s or beginning of the 70-s and the period that has passed since then can be characterized by development and theoretical foundation.
The following were the basic principles of the utilization of video technique:

1. Utilization is aided by state documents, unified concepts so that it
- increases the effectiveness of education,
- will face higher demands concerning the organization and methodology of the educational process,
- allows new organizing and methodological possibilities.

2. The use of videotechnique in the pedagogy of higher education aims at
- extablishing a closer tie between theory and practice,
- uniting scientific training and education, helping the creation of the socialist teacher personality,
- creating unity between education and research,
- establishing proper relation between the highly responsible, independent, creative attitude of students and the activity of educators.

Videotechnique has an important role in the realization of the unity of theory and practice in educational work of a higher level.

The demonstration through video of practice in the case of lectures on educational sciences of a production process in case of natural science and technical subjects helps the students understanding, makes them think, motivates a higher level of acquisition and unites all these. It helps the development of the educator's professional consciousness.

3. The possiblities of video technique are used to increase the effectiveness of lectures and seminars. According to the special demands of training videotechnique is used in many institutes of higher education in helping gifted students and also in individual preparation.

4. Videotechnique cannot be a substitute for another equipment or method, but must be used where other equipments are insufficient. The use of videotechnique together with other teaching aids is reasonable in case of special needs. Video equipment can be found in all universities and colleges of the GDR, which permits a great variety of utilization.

These forms are:
- lecture through television,
- TV recording /note/ from state transmission, local recording.

From among the fields of utilization we must mention the demonstration of experiments in vocational training, the practice of proper pronounciation in teaching foreign languages and especially in training in educational science.

TV recordings are used for demonstration, for inducing mental effort, **for preseting** an evalution process, for observing practice processes, analyzing, evaluating them, for the preparation of decisions and self-confrontation. Some information on didactic work relating to utilization: The Humboldt University organizes meetings, conferences on the use of videotechnique in teacher training **annually**, where foreign experts also participate. The Humboldt

University produces videorecordings for other institutes as well and these are used in teacher training. There is close cooperation in the country but several problems still have to be solved. These are:
- educators have to be adapted to use videotechnique,
- programmes should be produced that can be exchanged and commonly used by universities and colleges,
- the quality of videorecordings, programmes should be increased.

Essentially the situation in the socialist countries was presented through the sitution in the GDR.

The papers were followed by many questions, but discussion did not evolve.

WALTER ZIFREUND: in his paper on "The main trends in educational technology, and in the use of video techniques in the West-European countries" mentioned the following:
Similarly to other industrially developed countries the teacher training institutes of the West-European countries have video equipment, although their utilization started later in the Latin language territory than in the German one. It is not the number of sets that counts in teacher training: it is not sure that the best work goes on in an institute having expensive, and professional, very modern equipment, effective activity may be conducted with a minimum of equipment.
The first question to be examined is what are the basic criteria of evaluating the use of technology in teacher training. The answer is that video technique assures the better preparation of teachers for teaching, it serves learning to teach in the first place.
The next question to be examined: Does the utilization of educational technology in teacher training mean development? In the first phase of teacher training teaching in small group, is recommended this should be followed by teaching

under simplified conditions and then by classroom teaching. Teaching can only be learned in education. Many experts have concluded that microteaching is necessary. Video systems can be used for this. "Educational watching together" of video recordings has advantages and disadvantages /O.A. Schorb's method/. Mass TV watching does not solve teacher training, because if 500 students see and criticize the teaching of a student-teacher it is disadvantageous for him. This use of video, this "clinical movie" multiplies the disadvantages of teacher training that is already ready for a reform. For this very reason a great number of valuable, professional equipment are unused in the GFR as there would be need for equipment that could be used by students individually. But it was simpler to procure professional equipment with "over-investment" than the relatively cheap, but easy-to-use "consumer equipment". With less money and well planned research it is possible to get further than with expensive and relatively unused "prestige-equipment". Less can be learned from viewing and discussing other people's teaching than from practicing to teach, although this "clinical movie" is more comfortable for the educator.

The financial funds for the acquisition of the most modern technology for teacher training is not favourable in the GFR. A spectacular investment is faster than a more justified, smaller, more useful one. This is the case with the large number of unused professional video equipment. An example is the "Watching Together Institute" in Munich, where scarcely used materials were prepared for millions of investment. This does not assure proper practice for starting teachers: this "big toy" should be renounced. Video self-confrontation, instant feedback is important in teacher training, but cannot be an aim in itself. The study of Frances F. Fullner and Brad A. Manning dealing with this question must be noted. Attention must be drawn to the negative effect of self-confrontation: educators in teacher training have not taught for a long time, they have lost contact with teaching and can only criticize it. They do not undertake self-confrontation through a demonstration lesson, but usually use an external recording, demonstration. The ruthless objectiveness of video bears dangers for the starting teacher, it may discourage them, may create a feeling of unsuitability. In teacher training video can only be used for the educators of teachers and teacher - trainees together, under equal conditions and with task oriented exercises.

Video technique is widely used in West-Europe to study the educational process of teacher training as it can be replayed at any time thus being a sort of audiovisual report. Another important possibility of using video technique is the preparation of model recordings; it is cheaper than films, can be repeated in parts, own recordings may be used. Not the technical conditions are important in their preparation, but the content, research and development work. As an important source of adaptation American films on microteaching were mentioned. However, we have to be careful about the place and role of model recordings and not to overestimate them.

There were some short comments on the main questions of the use of video technique in teacher's behaviour practice and the possibilities of research relating to this. It is the aim of teacher training that is important and every aid must serve this.

The paper and presentation of a film and video programme on microteaching were followed by a discussion which dealt among others with the rather pessimistic tone. The paper and the discussion gave good information on the practice of teacher training in West-Europe.

VII. Contributions

13 Contributions were announced, but owing to the lack of time only 11 were made. The information received from the papers of the invited experts were well supplemented

by the contributions of home and international specialists /appendices 7-15/:

CHRISTIAN MIESCH: In his contribution on the "Design and preparation of videorecordings for teaching sciences" mentioned the following:

The colleges concerned with the preparation and production of educational videorecordings should strive to reach the standard demanded by society expecially in the field of educational science. This can only be realized with the collaboration of the technician, teacher, customer and producer, in both the design and execution. There are some basic demands regarding videorecordings that concern both the customer and the producer/pedagogical-technical department/ and these should be checked before production. Beside the essential content features the objective, method, function, planned utilization, who teaches how and what on the recording, what visual and auditive requirements should be met-all this has to be clarified in the phase of design. The same refers to the environment, the teaching aids used and their function. When starting the recording all these questions in-cluding requirements and possibilities for solving the task, behaviour in the studio should be discussed again at a coordinating discussion with all those concerned. All the conditions should be re-checked and in the light of these the technical conditions, the equipment demands of the recording and practically all the steps of the producer can be defined.

The collaborators must be informed of every recording and condition.

The students /class/ with whom the recording is made must be acquainted with the studio, with the work going on there a few days prior to the recording so that the sudden effect of the new circumstances will not disturb the educational process.

It is also necessary to come back to the circumstances of utilization.

KLAUS KROLL in his contribution gave information on the utulization of videorecordings in the GDR in higher education and especially in teacher training. He gave a briefing on the nearly ten years of work of the coordinating committee dealing with the design and dissemination of videorecordings for higher education.

STEFAN POZLEP gave a brief encounter of the electronic classroom of the Maribor Pedagogical Academy, the available educational technology facilities, the feedback equipment interfaced with a computer. Video equipment is available for the feedback equipment and external and internal TV transmissions. Essentially the room combines the equipment of the communication and data processing system in a single functional unit.

OLAVI NÖJD spoke of the following in his contribution entitled "The analysis of critical incidents in teaching": The important condition of teacher training is that besides acquiring the general didactic principles teacher trainees should be able to observe and analyse that actual performance and find the critical points in it.
In order to do this the equipment system of educational technology is at his disposal.
The aim is to develop the didactic theory of teaching practical subjects in a general form which is easy to apply in practice. An experiment going on in the teacher training institute of Jyväskylä University using videotechnique in technical work and handwork was presented. Investigation was carried on in different versions which emphasized the succes of the video process. The video recording used in the experiment was shown at the conference.

ERKKI KOMULAINEN spoke briefly about the structure of teaching abilities, noting the role of video technique in their development.

ALEXANDR PANAJOTOV gave a short insight into the use of educational technology in teacher training in Bulgaria.

MARGARET JENSEN spoke of the following under the title "Classroom situations":

In the British educational system the local educational authorities and schools have considerable autonomy. The teachers largely choose the material of the lessons and the methods themselves although finance and the needs of public examinations mean a certain constraint. The system of equipment acquisition allowances makes it possible for the schools to buy their own equipment and set up their own order of priority. As a result of this the types of equipment and the effectiveness of utlization is of a wide scale.

Personal experience shows that cheap technology can be quite as effective as sophisticated and costly ones. Britains's large and further increasing unemployment caused motivation problems with the students and the situation is made even more difficult by the planned cutbacks in higher education.

British teacher training centres and resource centres extensively use technical aids in the preparatinn of teaching aids for different subject.

The demand for the permanent, critical supervision of materials and methods also applies to the in-service training of teachers.Different registration methods were used at the University of Bath in work on teaching problems in mixed ability science groups. The research group is willing to video-tape lessons for teachers anxious to re-examine their own methods.

ZOLTÁN GÁRDAI in his contribution entitled "The educational technology system of the Esztergom Teacher Training College" spoke of the following:

The optimum performance of research-development work on the topic demanded the establishment of an organizational unit, the members of which had pedagogical and technical knowledge and did not deal with the topic in an isolated way but participated in the educational work of the college and training school.

In the course of development in the interaction of software and hardware the demand of the software side are dominant.

The established complex video system is composed of two independent units. The unit in the college building includes a complete centre, a studio suitable for making microteaching recordings, rooms suitable for recording and playback as well as video-scopes and mobile units in the rooms. The unit in the training school includes a centre, a studio /of two classrooms/ suitable for live and video assisted lesson visiting and several rooms suitable for recording and playback. Development is in the direction of including programme transmission technique, i. e. microprocessor controlled television systems, and programming in the practical training of students and in language teaching.

RÓBERT KOZMA spoke of the following under the title "some questions on the utilization of AV technique and the development of educational technology in teacher training": AV equipment have several functions in teacher training. Their use, utilization on different levels may serve different objectives. These functions are: as an aid of education it serves a higher level, more modern and more effective education; it may be the subject of education and lastly may be used in the teaching practice of teacher trainees. In the course of using equipment in these three functions there are different aspects, which raise different problems. In its function as a "teaching aid" the emphasis is not on the equipment but on the information transmitted by it. The main question here is that the media should be professionally, didactically and psychologically well edited and properly produced from a technical point of view. Regarding utilization media should be "effective" and assure versatile use. Primarily overhead transparencies, framed slides and in case of suitable technique videorecordings have these features.

Within the frame of the subject "educational technology" the teachers-to-be receive training on the use, handling of AV equipment, design and production of different types of media. In the course of education on AV technique the emphasis is on the subject of education i.e. on AV equipment. Information is carried by the equipment itself. With the increase of the number of trainees the use, the rate of wear of equipment increased. Maintenance activity within the institution should be fortified. The moral wear, technical obsoleteness of AV equipment is a problem.

The audiovisual training of students can only be effective if there is permanent, close personal contact with the subject departments, subject teachers, training schools, instructors. There is possibility for reviving the AV technique knowledge learned earlier in the frame of methodological practice. They have a suitably equipped consultation cabinet where the trainees can prepare new media designed for their teaching in a good quality.

The use of audiovisual technique training is very complex, it is a continuously developing, forming, enlarging task related to very many subject, economic, theoretical-scientific, practical-organizational and personal questions and tasks. It has fundamental importance in the modernization of educational work, in raising its level and effectiveness.

GYÖRGY APPEL spoke of the following in the topic "Ways for unification of methods and educational technology of teacher training and in-service training with the use of video technique and computer systems":

In Budapest the number of educational technology equipment has multiplied several times. According to surveys teachers want to use the equipment, but this would necessitate their. Training in educational technology is institutionally solved in teacher training and active teachers are trained by further training institutes. Further training has been solved in Budapest.

There are some proposals, recommendations for unifying training, namely

- the harmonizing of programmes of training and further training institutes,
- educators should be taught to handle every type of equipment, for this training and further training institutions should open their gates,
- in further training it would be practical to consider grouping according to fields of science,
- the exchange of media should be solved.

Tasks for the future were concluded in five further points.

FERENC POÓR accounted of the following under the title "One of the forms of developing pedagogical abilities using video at the Szombathely Teacher Training College":

Experience of small group pre-tests and the study of preservation level certified the effectiveness of video ability development based on the whole process. Several programme variations of video ability development

fitting into teacher training were developed on the basis of these results and these were tried out in the present academic year at the Szombathely Teacher Training College. For intensively developing pedagogical abilities an equipment-based, primarily video process had to be found and/or developed that would assure practice fitting into the whole process and would rely on the knowledge of students. This uses a global training process based on larger action units or practicing the coherent whole and adapts certain elements from both "classic" microteaching and from the Klagenfurt behaviour-training.
The training process is structured according to the following larger units:

- Obtaining a real self-knowledge by solving smaller tasks and with their videorecordings.
- Pedagogical situation practice, modelling shorter teaching activities within the student group and with the help of pupils. All activities are evaluated.
- Shortened-15 minute-lessons where the students teach smaller groups of pupils. All these periods must contain the whole process, these are evaluated, analysed on the basis of video recordings. Then every student teaches another period in another topic. A comparative evaluation is made after two or more recordings.
- Teaching practice; videorecordings of these are similarly evaluated, analysed and compared regarding a students development and also compared to the performance of students solving identical tasks but not receiving video training.
- Every member of the group actively participates in video period. Thus all students are active on all recordings and practice time is greatly extended compared to traditional training.

Results: compared to the starting level all students developed by a measurable level; the students liked video period and wish to carry on with them.

Further experiments are necessary for exploiting the optimum content, form and system of effect of video pedagogical practice.

Owing to the lack of time two contributions were not made /appendicies 14-15/:

MIKLÓS MAGYAR: "A basic factor of vocational training is the instructor-experimental programme for developing pedagogical abilities with video" and
LAJOS SZABADOS: "Some possibilities of using videorecorders in teaching didactics".

VIII. Conclusions, recommendations

The Conference arrived at the following conclusion and agreed on the following recommendations:

Following the debate on the experts' reports on the use of educational technology in teacher training and a wideranging exchange of opinions on a number of inter-related theoretical and practical issues the participants of 9 European countries arrived at the following conclusions:

1./ Educational technology and audio-visual teaching aids interpreted in a broad sense are gaining increasing ground at every level of education. That is why it seems necessary that training in the use of the above aids and through low cost domestic software production should become more intensive in the sourse of teacher training for all types of schools or it should be established and assume a regular form wherever necessary.

2./ The participants of the conference agreed that despite technological development the human factor will remain to be the primary factor in both public education and teacher training.

3./ The use of audio-visual media has, on the whole, already proved to be well-established in teacher training.

It was, above all, the video media that have created new opportunities in teacher training for the observation of the teaching process, for drilling the skill of teaching and for the presentation of educational models. At the same time it has also become obvious that new technologies such as microprocessor technology will soon make it possible to introduce computer-aided educational forms into teacher training. First of all the elaboration of such schemes must be promoted which can offer a guarantee for the educational technology processes to be incorporated into the overall concept of training, into the theoretical concepts as well as into the didactical and methodological contexts and demands which are essential from the aspect of teacher training. In the course of this process particular attention must be devoted to the integration of theory and practice.

4./ The production and evaluation of high standard materials of educational technology-aided teaching will soon exceed the potentials of the individual countries. For this reason every opportunity must be siezed for the international exchange of materials and processes serving teacher training.

5./ In order to achieve optimum utilization of the new media in education and teacher training the materials must be developed extensively and intensively on a long term basis along with research on the optimum elaboration and the evaluation of the effects of different educational and training possibilities relying on educational technology.

6./ Since it cannot be expected of the industry to achieve - within the foreseeable future - the compatibility or standardization of media of outstanding importance from the aspect of education and teacher training and in view of the fact that audio-visual teaching aids will most probably continue to be manufactured for a long time to come in different make in terms of technology and form, it is of paramount importance to establish centres of educational technology which are capable of duplicating and making accessible the given educational and training software items in accordance with the demands made by the media of presentation owned by the users.

7./ The use of audio-visual educational media in the classroom is basically dependent on the following three factors:

- the availability of media that are applicable and suitable for use from the viewpoint of education;
- the training of teachers in how to operate the necessary hardware items and in how to integrate the eudio-visual materials into the whole of the educational process;
- the availability of operational organizations of distribution so that the teacher can have access to the media indispensable for his teaching work without needing extra time and at the appropriate moment.

8./ The participants of the meeting were made acquainted with the video equipment and media that have different functions to perform in assisting education carried on at the Teacher Training College of Szombathely. They were also given the opportunity to see the importance of supplying a teacher training institution with video technique from the viewpoints of the quality of training and diversity.
On the basis of the above the conference deems it expedient to make the following recommendations:

a./ To the national authorities:

- They are requested to support the drawing up of projects the objective of which is to achieve that there should be at least one highly qualified teacher having been given training in educational technology in every school.
- They should support the elaboration of plans for the integration of initiatives relating to educational technology in teacher training and within this frame the drawing up of plans, in particular, for the

production of educational media that can be used as the means of research and education carried on within the frame of teacher training and for the application of educational opportunities relying on video equipment and computers.

b./ Request to UNESCO:

- To establish an international information system and exchange mechanism of audio-visual teaching materials /software, AVINTER/ in order to help Member States to preview and try out new materials and to reduce costs;
- To help, through its clearing house services, to increase and consolidate the mutual exchange of information and experience on new audio-visual materials and other software between teacher training insitutions in the European region;
- To support cooperation between institutions of the above nature that are already operating /for example OOK, the National Centre for Educational Technology in Hungary/ and are capable of copying educational and training media suitable for the demands of the demonstrating equipment at the disposal of the users.

IX.

We would like to express our thanks to Unesco Secretariat for having helped us organize this significant conference.

Veszprém, 20th October 1981

Dr. Sándor Orosz	Dr.Pál Szücs
Rapporteur	Vice-raporteur

Appendix No.1.

PARTICIPANTS OF THE CONFERENCE ON TECHNOLOGY IN THE SERVICE OF TEACHER TRAINING

Experts:

Prof. Dr. Walter Zifreund	Tübingen University
Christer Brusling	Göteborg University
Dr. Hans-Georg Heun	Humboldt University, Berlin

Participants:

Olavi Nöjd	Jyväskylä University
Prof.Dr. Erkki Komulainen	Helsinki University
Margaret Jensen	Hardenhuish School, Chippenham
Dr. Christian Miesch	Dresden Pedagogical College
Alexandr Panajotov	Council for Higher Education of the Ministry of Education, Sofia
Stefan Pozlep	Maribor Pedagogical Academy
Dr. Klaus Kroll	Institute for Film, Picture and Sound, Berlin
Andri Isaksson	UNESCO
Mrs.S. Balog	[illegible]garian National Comission [illegible]r Unesco
József Bendik	Hungarian National Commission for Unesco
Mrs.A. Pálfalvi	Ministry of Education
Éva Zsilinszky	Ministry of Education
Imre Miklós	Ministry of Education
Dr.Sándor Nagy	Eötvös University, Budapest
Ferenc Genzwein	OOK
Dr. Pál Szücs	OOK
Dr. Ferenc Poór	OOK
Dr. András Rohonyi	OOK
Imre Jurics	OOK
László Szalay	Szombathely Teacher Training College

Dr. Sándor Orosz	Szombathely Teacher Training College
László Pehi	Szombathely Teacher Training College
László Orbán	Szombathely Teacher Training College
Dr. Péter Schvób	Teacher Further Training Institute, Kecskemét
Zoltán Gárdai	Esztergom Teacher Training College
Miklós Magyar	TFTI Kaposvár
Dr. Róbert Kozma	Juhász Gyula Teacher Training College, Szeged
József Gombos	Budapest Teacher Training College
Mihály Sánta	Kaposvár Teacher Training College
István Ledninczki	Győr Teacher Training College
Dr. László Kovács	József Attila University,Szeged
István Magyarosi	TFTI Békéscsaba
Antal Magdi	Sárospatak Teacher Training College
Géza Molnár	TFTI Debrecen
János Dudás	Kindergarten Teacher Training Institute Sopron
László Gazda	Kindergarten Teacher Training Institute,Hajdúböszörmény
István Kuti	Kindergarten Teacher Training Institute, Kecskemét
Margit Dudás Tóthné	Pécs Teacher Training College
Dr. János Fekete	National Institute of Pedagogy
Dr. Lajos Szabados	Ho Si Minh Teacher Training College, Eger
György Appel	Budapest Pedagogical Institute
Prof. Helmut Franz MA, MSc.	Rehabilitation Clinic, Ostende

Appendix No. 2.

Andri Isaksson

UNESCO AND EDUCATIONAL TECHNOLOGY IN TEACHER TRAINING

I. INTRODUCTION

1. In the field of educational technology, Unesco's action is based on the assumption that the application of new methods and the use of new techniques should be sustained by a general conception of education which reflects an overall view of the educational process and its ultimate concerns. Thus, curriculum reform and the use of new methods and techniques are seen as a component of a general effort to renew and modernize educational systems. One of the Secretariat's conserns is to promote new strategies in which both content and methods are considered as equally important independent elements of one and the same system. These are seen as part of an overall design.

2. With regard to the transfer of educational technology, field experience indicates that the process of transfer in the literal sense must usually be replaced by a policy of adaptation. Unesco, whilst pursuing the study of advanced techniques, endeavours to promote the development of appropriate or suitably adapted educational technology.

3. The teacher's role and functions have changed as a result of socio-economic development, advances in natural science and technology, new ideas and priorities in educational philosophy and sociology, progress in pedagogy and educational practice, as well as reforms of educational systems. These developments call for an increased emphasis on problemsolving, analysis and adaptaion to the needs and requirements of the situation. This should therefore be a major focus of teacher's education and training, of which educational technology should form an integral part. In its programmes related to educational technology and teacher training, Unesco attempts to promote a pedagogic process based on these principles.

II. SOME DEFINITIONS

4. It may be useful to distinguish two basic categories of the subject, depending on the aim involved:

a/ Training teachers in the use of educational technology /the objective being appropriate use of educational technology by the teachers after graduation/.

b/ Educational technology as an aid in teacher training /the objective being to improve the training programme by a judicious use of educational technology in various subjects or parts of the programme by the teacher trainers/.

/Even if this dichotomy is logically clear, there are obviously some overlaps between the two categories. The most obvious one might be the spillover from b/ which indirectly furthers the aim pursued in a//.

5. Another important distinction is the one between initial and further /or in-service/ training of teachers.

6. Out of these two sets of categories we can draw up a simple table as follows:

		TRAINING	
		Initial	Further
EDUCATIONAL TECHNOLOGY	Its use	1	2
	As an aid	3	4

7. Unesco's work in the field of educational technology in teacher training has so far had No. 2 as its main focus, even if all four boxes have been the subject of several programme activities. The reason for the emphasis on in-service training of teachers in the use of educational technology may be the fact that Member States frequently ask Unesco for assistance in implementing reforms in which the use of appropriate methods, materials and techniques is a key component, and that Member States feel that further training is more rapid way of reforming educational practice than initial training is.

8. Initial teacher training remains of course paramount, however, and indispensable as a strategy for having a profound, wide-ranging and long-term effect on educational practice in schools. Unesco has noticed that the main subject of this conference corresponds to box No. 3: educational technology as an aid in the initial training of teachers. Since this focus has not been a typical one in Unesco's activities so far, the Secretariat welcomes it as a useful initiative.

III. UNESCO'S ACTIVITIES

9. Unesco's programme activities in the field of educational technology related to teacher training may be roughly divided into the following categories:

a/ Seminars, symposia and other meetings of specialists,
b/ Studies and publications,
c/ Operational action and development work,
d/ Normative action,
e/ Subregional and regional cooperation.

10. Among seminars, symposia and other specialist meetings which Unesco has organized or supported in Europe, the following ones may be mentioned as examples:

a/ International seminar on educational technology, Budapest, 1976
b/ International seminar on experience gained from the Polish system NURT in the use of radio and television in teacher training, Warsaw, 1977
c/ International symposium on further education of teachers in the use of educational media, Prague, 1977
d/ International round table on the integration of school radio and television programmes in multimedia complexes for compulsory education, Bucharest, 1979.

11. Unesco has made or commissioned a number of studies in this field, some of which are published, others are being circulated in the form of mimeographed reports for a more

restricted audience. Unesco cooperates with various national institutions and international organizations in this respect, including, typically, the International Council for Educational Media /ICEM/. The following titles may be considered as typical examples of Unesco's recent publications in this domain:

a/ A Systems Approach to Teaching and Learning Procedures:
- A Guide for Educators in Developing Countries -
Paris:Unesco, 1980. 144 p.
A revised and expanded version was published in French earlier this year under the title: L'éducateur et l'approche systémique/.

b/ Audio-Visual Centres in Institutions of Higher Education in Europe
Compiled by Richard Dyke
University of Warwick/Unesco, 1979. 283 p.

c/ The Multilateral Exchange of Educational Audio-Visual Materials
-Existing Mechanisms and Suggestions for the Future - Paris: Unesco, 1980. 117 p.

12. Operational action and development work is a typical priority area of Unesco's education programme as a whole, especially in the developing countries of the Third World, but also in other regions. Unesco has, e.g. acted as the international executing agency of two projects in educational technology, partly financed by the United Nations Development Programme /UNDP/, and based in this part of Europe: the National Centre for Educational Technology /OOK/ project in Hungary, which was launched in 1972 and has now come to an end, and the Educational Technology Project in Romania which was begun in 1977.

Unesco's contribution to the production of learning materials may also be categorized under development work. Unesco has produced, or is producing, in cooperation with several teacher training colleges and other institutions or enterprises in various countries, a certain number of multimedia complexes for the purpose of teacher training. A case in point is the forthcoming Multimedia kit for teacher training produced in cooperation with the Ecole national supérieur de Saint-Cloud in France and the National Centre for Educational Technology/OOK/ in Hungary. Microteaching is the main focus of this multimedia programme which so far exists only in French under the title of "Mallette multimédia pour la formation des enseignants - Observer et analyser des situations pédagogiques".

13. Unesco participates in different actions of a formative nature with regard to educational technology. The most important area is the promotion of the free circulation of educational materials which is favoured by the Agreement of the Importation of Educational, Scientific and Cultural Materials, adopted by the General Conference of Unesco in 1950, and amended by the General Conference in 1976 by an additional Protocol extending its application to visual and auditory materials of an educational, scientific and cultural character, such as videotapes, videodiscs, materials for programmed instruction, transparencies for overhead projectors, multimedia kits, etc.

Moreover, Unesco works for a better harmonization of audiovisual equipment and increased mutual information on educational software among producers and distributors of such materials. This is done in cooperation with international organizations such as the International Standardization Organization/ISO/, the International Council for Educational Media/ICEM/, and production organizations such as EURODIDAC.

14. Much of Unesco's work in the field of educational technology is carried out in the framework of regional or subregional cooperation which Unesco organizes among its Member States. Some of the above-mentioned activities are usually pursued in such a framework. Among other Unesco activities of a regional or subregional nature, study tours of specialists in other countries can be mentioned as a case in point.

In the Europe region, Unesco operates a subregional network of "Cooperation in Research and Development for Educational Innovation in South-East Europe"- CODIESEE for short. Educational research and development institutions in Bulgaria, Greece, Hungary, Rumania, Turkey and Yugoslavia take part in this network. The network is open for wider participation, however, and it is expected that a number of other Member States of the Europe region will join it during the next two or three years.

As far as Unesco is concerned, this very conference is held in the enlarged context of CODIESEE.

IV. ROLE OF THE TEACHER

15. As stated above, the teacher's role has changed and is changing in accordance with various developments in society, science and education. The teacher's role as a source of knowledge is gradually diminishing, and giving way to his role as a resource for helping pupils achieve knowledge and understanding. This inevitably changes the authority structure of the classroom. The teacher has to get closer to his pupils as a guide, a cooperator and a primus inter pares member of a team - in other words: as an educator in the literal sense of the word.

16. This type of teaching calls for specific skills and understanding: The observation and analysis of needs and situations becomes paramount, and this includes not only the pedagogic aspect but also the sociological situation. Organizational skills remain important: skills of preparing, organizing and evaluating learning and instruction on the basis of perspicaciously observed and well-analysed needs. It is at this stage that educational technology comes into the picture, for enlightened dicision-making and skilful execution. The emphasis is on the teacher's role as a probelem-solver in a constantly changing pedagogic situation.

17. To solve the problems of learning and instruction the teacher needs some kind of a systems approach. He or she

should set clear objectives for whatever learning is to be achieved, stating them behaviourally or otherwise according to the nature of the learning involved. He should then make a decision on strategy: how to go about promoting learning, how to organize work in order to maximize learning. He must at this stage take into account the prevalent situation and the resources available. Very sophisticated materials and techniques are often costly, and some low-cost techniques have turned out to be highly effective when skilfully used in specific situations. Lastly, the teacher has to ensure that he gets proper feedback from his pupils in order that he may objectively evaluate the learning that has taken place.

18. In addition to the above, it is worth emphasizing that the new role of the teacher is influenced by a major shift of focus in educational philosophy and science - viz. the transition:

- from the acquisition of knowledge in accordance with the laws of its internal structure to the treatment of such knowledge by means of a psychological process in which the laws and conditions of the learning process are taken into account.
- from cognitive learning to the corresponding affective behaviour, i.e., from the interiorization of principles to their translation into deep-seated attitudes and consistent behaviour.

V. EDUCATIONAL TECHNOLOGY IN TEACHER TRAINING

19. The training of teachers for the use of educational technology should emphasize a problem-solving capacity, based on a sound judgment of the needs and situations involved, as well as coherent range of skills and knowhow depending on the pedagogic decision taken. Among the situations upon which the teacher should base his judgment, the hardware and the software available, as well as the costs, obviously enter the picture as important components. Such an emphasis on problem-solving and decision-making implies that the

focus of training will in practice be different from the taxonomic approach of training by type of media.

20. When educational technology is employed as an aid in teaching various subjects or parts of a teacher training procramme, practicality would indicate that this should be combined with a "training for use" approach, the trainer acting as a model.

21. When educational technology is aimed at training for use, a decision must be taken on whether it should constitute a separate part of the programme or be integrated into its various components. The above-stated reasons would plead for integration.

22. A multimedia kit approach can be a useful one in training for educational technology, especially with regard to in-service training. It is self-instruction or group-instructional, and it can help overcome the problem of curricula and content by providing a modular approach with several entry points. Recent developments in this field, including those which have characterized Unesco's part in the pedagogic design and promotion of multimedia kits for teacher training aim at rendering the kits problem-oriented rather thanmedia-oriented, thus relating them more closely to overall educational practice. The role of the teacher should be a primary focus of any multimedia approach, the teacher being the only educational agen capable of adapting himself or herself to any learning situation.

23. When assessing the global field of educational technology, it seems clear that hardware has developed more and faster than software. This should be taken into accoznt in teacher training: trainers and trainees should give priority to devising, testing and evaluating new software.

24. So sum up, the objectives of training and further training for the use of educational media should be based on a problem approach aiming at developing the capacities of understanding, analysing and problem-solving so that new developments in educational technology, or the introduction

of new types of materials into the educational system, would not render the training obsolete. A systems approach, as the proper methodology of educational technology, would appear as the unifying principle.

Appendix No.3.

Sándor Orosz:

DESIGN AND PRODUCTION OF EDUCATIONAL MATERIALS FOR THE MODERNIZATION OF TEACHER TRAINING IN THE SZOMBATHELY TEACHER TRAINING COLLEGE

1. Background

The technical equipment of our college made it possible from the end of the 1960's to deal more intensively with the problem of the production and pedagogical utilization of technical media.Naturally an institute like this cannot undertake the production of all kinds of media; taking the circumstances into consideration we have concentrated our forces on video techniques since the beginning of the 1970's.

As there were few precedents to depend on in the research of the topic in the first period work was characterized by information, the exploitation of technical literature, formation of assumptions, making uncertain attempts to conduct surveys on the basis of the primary assumptions. The development of the technical system was carried on simultaneously with this. Systematic research could begin in 1976.

This was started in three directions:

a/ The examination of the possibility of establishing an up-to-date, not too costly, economical video system.

b/ Research of the scientific, pedagogical, psychological conditions of designing and producing video recordings, acquiring theoretical and practical knowledge in directing and cameraman's work at the same time.

c/ Conducting experiments and surveys of results on the pedagogical utilization of videorecordings already produced.

Results were mainly obtained in the field mentioned under points a/ and b/, the experiments were only started in a modest way, surveys of results were mainly conducted in the following plan period.

2. Main results

The results will be taken into account according to the three directions of research work mentioned.

2.1. As a result of the development of the technical system actually two video units are in operation at the college. One is that of the training school which is essentially a closed-circuit system, the other is the College Studio. Today the equipment of the training school cannot be regarded as unique: almost all teacher training institutes have a simpler version of this. This unit is composed of five rooms in a symmetrical setup: the two outside rooms are classrooms that are separated towards the centre by amalgamated glass walls from the observation rooms and the control room can be found in the axis of symmetry. Fixed and movable TV cameras are situated in the two classrooms so that videorecordings can be made of the whole classroom, group /from the front and from behind/, the teacher and the blackboard. The equipment of these rooms include a sufficient number of high-sensitivity microphones, sound and light insulating curtains, tables and chairs rearrangable at will, the AV equipment needed for lessons and everything that belongs to a "normal" classroom.

The"soul" of the control room is the control panel from which the cameras, and the volume and tone of sound in the classroom can be remote controlled; with the help of monitors belonging to each camera the desired picture can be chosen and recorded on tape; with the help of a separate monitor programmes of the state and educational television can also be viewed and recorded: there is also an insert camera with which figures, captions, etc. can be added to recordings. The audio-connection of all the rooms assures trouble-free operation. Through the observation rooms this unit makes the traditional visting possible without interfering with the pedagogical process in such a way that the process can simultaneously be recorded on video.

The equipment system of the College TV Studio is essentially different from the equipment used at other colleges. In 1978 on the basis of our results the Ministry of Education trusted the College with the design, production and national dissemination of videorecordings used in teacher training, so very substantial, more than average support was received for establishing the technical system. As a result of this a complex system composed of several equipment combinations was designed.

Basically the system has three functions:

a/ making recordings, b/ ulterior editing /cutting, picture and sound dubbing, etc/ of recordings, c/ playing back TV recordings.

a/ the following sub-systems are at the disposal of the college for making recordings:

a/a One camera recording and playback unit. Operates only from 220V AC, so it is more stationary. The black and white recordings under preparation can be viewed on a monitor, it can also record state programmes. With the help of an adapter several TV sets can simultaneously play back the material. Thus it can fulfill two functions at the same time /recording and playback/, and being a simple, relatively cheap system, it can be used in any teacher training institute.

a/b Reporter videorecorder set. It is suitable for the same puposes as the previous simple system from which it differs by the fact that the /more costly/ reporter videorecorder can be used on any chosen location with great mobility and also in insufficient light.

ac/ Multicamera black and white mobile system. May be transported in a microbus, operates on the mains. Its complementary equipment are sound recording /microphone, etc/ and lighting equipment. With the help of several cameras events can be seen and recorded from different sides and perspectives, cameramen can be directed while recording. In case of a well prepared shooting materials "ready for transmitting" can be prepared with this subsystem.

Naturally it is a more costly, more complicated system so it is worth while procuring in places where a greater number of recordings are made and several copies are prepared of these.

ad/ Complete colour studio. A large capacity system using several colour cameras. External recording, films, slides, different figures, etc can be used as inserts when producing studio recordings. Making colour recordings requires high level proficiency as colour correctness depends on various factors. An expensive system, so its establishment is only justified in basis institutions where central programmes are prepared for other institutes.

b/ Two systems are used for the editing of recordings.

ba/ A semi-automatic editing system for the ulterior editing of recordings on tape. Can be used for the editing of recordings tape to tape and tape to videocassette.

bb/ Cassette type automatic editing set. Editing of any /self made, and state programme/ recordings is possible. Sound and picture may be edited together and independent of each other. Sound may be recorded on two channels independent of each other. So for example bi-lingual material can be produced which can be played back separately.

This system is indispensible when making complex videorecordings.

c/ There are two units for playing back.

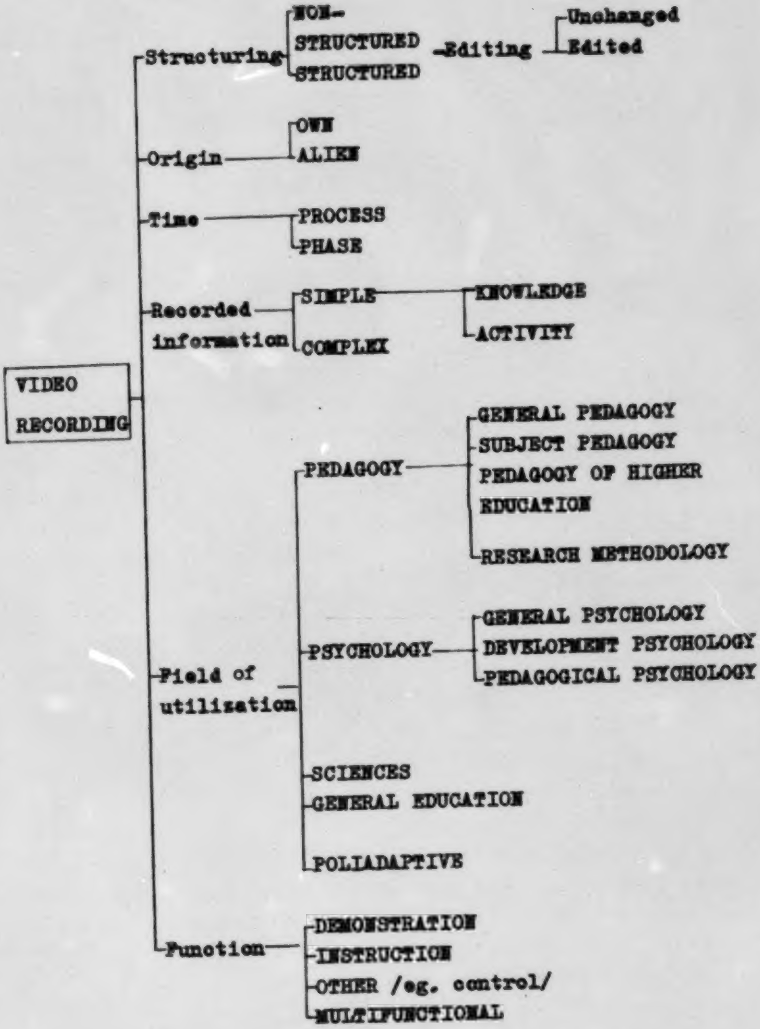
ca/ Central playback unit. This is a closed-circuit television system in which the source of information /videorecorders, cameras/ have been placed in the centre and a sufficient number of monitors located in 18 classrooms assure the viewing of the necessary recordings.

A bilateral sound connection has been established between the centre and the classrooms /with a housephone/ so on the basis of the catalogue the necessary informative material can be "called down" to the classrooms at any time. The playback equipment is operated by someone in the resource centre.

cb/ Mobile playback units. These are composed of a videorecorder connected with a screen. They can be moved anywhere on home made stands, so during the class instructors operate the equipment themselves. The great advantage of this is that any part of the videorecordings can be played back at any time, the whole recording or parts of it can be repeated, in can be stopped for interpreting, etc.

Both the instructors and the students like this system very much.

2.2. Research on the scientific, pedagogical, psychological conditions of designing and producing videorecordings yielded manysided results. Every one of these cannot be dealt with. There are some extensive studies ready for publication on topics like scriptwriting, subject matter writing, technique of recording, and surveys on experience gained in several fields of pedagogical utilization. Here we restrict ourselves only to some general information of theoretic summarizing nature. The above technical systems would have demanded very precisely designed media production. For this very thorough preliminary theoretical research work ought to have been done. But the lack of time and the objective demands of everyday practice usually impede this "proper" practice. Moreover, in the case of development research separate prelimirary theoretical activity is hardly ever conceivable. Thus, the daily practical demands enforced the continuous production of recordings which under these circumstances suffered from all types of "children's diseases". Due to the control provided by pedagogical practice and to theoretical research started in the meantime, work is becoming more systematic and the professional and technical quality of recordings produced and used in teacher training is improving. We have reached a stage when "things can be put in order". As a first step several attempts at typifying have been made. One of the ideas was to approach this question from the function played in the pedagogical process, thus creating the categories of demonstration, instruction and multi-function recordings; others started out from the problems of editing and creating the group of systematised /edited/ and situative /nonedited/ recordings. And naturally the system of micro-teaching was taken over, adapted, some of its forms have been further developed. Lately we have realized that every attempt at typifying results in the restriction of possibilities as the notion of type usually means the totality of entities with one common token. Whereas a system makes possible the multiple aspect review of a great number of entities on the basis of various common tokens. This is why we are trying to systematize video-recordings used in teacher training at the College.


VIDEO RECORDING
Structuring
NON-STRUCTURED
STRUCTURED
Editing
Unchanged
Edited
Origin
OWN
ALIEN
Time
PROCESS
PHASE
Recorded information
SIMPLE
COMPLEX
KNOWLEDGE
ACTIVITY
Field of utilization
PEDAGOGY
GENERAL PEDAGOGY
SUBJECT PEDAGOGY
PEDAGOGY OF HIGHER EDUCATION
RESEARCH METHODOLOGY
PSYCHOLOGY
GENERAL PSYCHOLOGY
DEVELOPMENT PSYCHOLOGY
PEDAGOGICAL PSYCHOLOGY
SCIENCES
GENERAL EDUCATION
POLIADAPTIVE
Function
DEMONSTRATION
INSTRUCTION
OTHER /eg. control/
MULTIFUNCTIONAL

Although the diagram is clearly arranged it needs certain explanation. From the aspect of editing all recordings are non-edited that directly record natural processes and parts of which are not rearranged with ulterior editing. On the contrary, all pre-composed process recordings are edited; the preparation of these require the writing of subject matter and/or a script book. But recordings composed of originally non-edited material being edited after each other or the recomposition of edited material is also regarded as edited. /This explains the classification according to editing in our diagram./ When editing all the possibilities of two and multiple camera technique are utilized: the editing of chosen pictures, inserting, captioning, mounting, floating, different tricks, registration of narrator and commenting text, etc. In the classification according to origin the denomination "own recording" does not need any explanation.
Recordings from Hungarian and foreign television programmes /including educational television!/ or of other institutions are regarded as alien including videorecordings of films /which are not yet frequent./

In the classification according to time "process-recording" means recording the whole process /eg. lesson, study circle, club programme, sport event, performance, etc./ "phase recordings" are all recordings that are made of non-complete processes /i.e parts of processes/.

In the classification according to recorded information simple recordings are those which contain information for teaching only one element of knowledge, i.e. either the substance of knowledge or activities. The denomination complex does not need explanation as opposed to this. There is no need either to deal with the classification according to the field of utilization and function. Most of the recordings produced at the training-school TV centre are non-edited. Many "own" recordings are produced - as well as recordings made of educational television programmes.

Regarding the recorded information they are predominantly complex: their field of utilization is diverse: starting from the sciences /disciplines/ through subject pedagogy to the pedagogy of higher education /practical teacher training/; according to function there are instructing and demonstrating as well as multifunctional recordings. A peculiar variety of demonstration recordings produced here are the recordings of lessons used in practical training which provide documentation of argument value for lesson analysis and self-control of trainees.

Technical literature sees one of the most important means of utilizing video recordings in practical teacher training in the fact that the trainee faces himself, gets an objective picture of his activity, his relation to children, his attitude as a man and as a teacher. The experience gained show that this type of utilization renders great help in creating the necessary teaching proficiency, and in forming the teacher's personality.

For a few years now school practice has been organized in such a way that every teacher-tobe faces himself in this way on at least one occasion.

A very big variety of recordings are produced in the college studio. Their common feature is that they are all edited and often recomposed several times. For example parts for a certain field of application are edited from official TV programmes, fragments of lessons /first editing/. These are captioned, the abstract model of the real process section, diagram, narrating or commenting text, music is added. The important elements /notions, relations, etc/ of the text appear visually. With the division of the picture the process /eg. and experiment/ can be seen in total plan and simultaneously an important part of this is emphasized in the marginal part of the picture: as many recompositions.

Before the concise characterization of the produced and regularly utilized videorecordings it must be mentioned that actually there is no natural science education going on at the college, there are no facilities, so no videorecordings of this type are produced.

There are relatively few recordings that can be utilised in the field of different sciences, they are mainly pedagogical and subject pedagogical and there are a few ones dealing specifically with psychology. While no deeper study on the possibilities of video-recordings was made many primarily demonstrational recordings depicting the whole process were produced with the objective that at the time only the function of videotechnique should receive attention.

Videotechnique has the feature of being instantly replayable without having to be developed. Attention was drawn by this fact to special possibilities of control: more and more recordings were produced with the function of "confronting" control. Use of recordings with these two functions led to instructional possibilities where a recording depicting and ideal activity serves as a model for the initiative learning of the activity. During the initating process a recording is made of the activity of the trainee and in the replay this activity can be analysed, compared with the model, corrected, and perfected with practice. Subject teachers like to use these because of their effectiveness in teaching different pedagogical activities "methodological knacks", developing pedagogical skills including the formation of general abilities like communication. The technical unit presented in point ob/ is very useful for this purpose: students like to use it in individual learning out of class and for self-devel. Essentially this system has created special types of the internationally known microteaching system; two versions of which are worthwhile mentioning.

An example of one of these is a series of short recordings prepared for students of physical training that can be utilised well in both the theoretical and practical teaching of handball. Structurally these are composed of two elements shown simultaniously. The first element: a narrator tells the role of each player /eg. goal-keeper/ in theory, at the same time the theoretical statements are shown on outlined progress diagrams built up of elementary movements with the most important moments flashed or shown "still" several times. The other element: a series of pictures from recordings of world championships depicting the theoretical knowledge "in live". With the help of the mobile unit mentioned earlier all this can be shown at the edge of the field and can be practised instantly, recording on videotape, playing back, comparing with the model, controlling-evaluating the result of the students in this way.

An example of the second is a learning package for students of music used in compulsory choir-master training. The most important part of this is a model recording decomposing the activity to elements; this is supplemented by written subject matter, OHP transparencies and testsheets. The printed matter contains the following:

- definition and detailed description of the activity /skill/, conditions of use, its role in the activity as a whole
- list of technical literature
- score of music helping to learn /on OHP transparency/, subject matter /music/ task of analysis
- the positive and negative procedures of the given skill
- criteria of evaluation
- description of learning steps to be taken by the student /learning programme/
- evaluation sheet.

The author of the recording and learning package series wrote: "As the model recording mainly increases the effectivenes of the performance by being infinitely repeatable it can be used without the presence of a teacher, the most economic territory of utilization is not during lessons, but outside the classroom in individual or small group learning".

Particular tasks are awaiting the creater of instructional recordings interpreting theoretical knowledge. One product of this type has been prepared for teaching the notion of knowledge and its varieties in didactics.This recording uses trickfilms, diagrams, fold-out process and system diagrams, details of lessons and narration. It concentrates the possibility of visiting classes on theoretical lectures, and their instructional or argumenting material. It may be primarily used in individual and group learning. The grounds for the existence of recordings like this are probable, but have not been sufficiently proved yet.

The above were examples for demonstrating the practical implementation of the theoretical possibilities shown on the diagram. With this our purpose was to outline the development and research work carried on in connection with the production of videorecordings.

2.3. A proper experiment in higher education has only been concluded with the learning packages on choir leading. Part of the results has been published by the author and the other part is also in a publishable form.

As only videorecordings of high quality can be utilized in proper experiments and development-research has resulted in quite a number of these and has solved a larger part of development-research problems, the focal point of research in the next plan period will be experiments on the pedagogy of higher education in the field of using videorecordings. This of course, does not mean that further development will be stopped.

2.4. Research carried out so far can be concluded by the following sentence: it has been proved that multifunctional, poliadaptive, well edited phase and /shorter/ process recordings with complex information are effective.

Appendix No. 4.

Christer Brusling

NOTES ON EDUCATIONAL TECHNOLOGY AND THE USE OF VIDEOTECHNIQUES IN TEACHER EDUCATION IN SWEDEN

Just a few weeks ago I decided to register as a participant of this conference. The fact that I agreed to present a written contribution does not only indicate poor judgement but also a desire to find answers to questions I have long had.

At the end of the sixties and in the beginning of the seventies I was, as a teacher educator, participating in the reshaping of teacher education on the basis of educational technology. Not by my own initiative, a group of experts had worked out curricula for the study of education. The curricula started with the analysis of objectives, advanced across the analysis of pupils and of subject matter to conclude with analysis of results. Trained as a psychologist, moreover in a rat laboratory, I felt rather pleased with these curricula. Some of those I trained were less satisfied. I'm afraid.

From 1970 to 1973 I worked on a research and development project entitled "Microteaching". At several institutions for teacher education similar investigations were started to try out and develop the American idea of training teaching skills in laboratory-like conditions, often with the aid of videotechnique both in a demonstrational phase and a feedback phase with self-confrontation. My own work resulted in a thesis entitled "Microteaching - A Concept in Development" /1974/. At that time I, myself, did not describe my work as educational technology even if that had been adequate according to both of the prevailing definitions: systematic education applying behavioristic principles and the use of communication media for educational purposes respectively.

In the middle of the seventies educational technology had almost vanished from the scene. You could ask what replaced it. In an attempt to indicate characteristics of the development, I counted the frequencies of certain key words given by the R and D-projects financed by the National Board of Education, to be used in a subject index. I picked out those words that I think well represent the era of educational technology and the preoccupations of later times.

Table 1.

Frequencies of certain keywords denoting educational R and D-projects catalogued by the National Board of Education in 1971 and 1980.

Key word	1971	1980
Systems of methods and materials	23	0
Teaching materials	30	2
Goal analysis, analysis of objectives	15	0
Programmed instruction	8	0
Closed circuit television	9	0
Individualised instruction	4	0
Educational efficiency	3	0
Evaluation	16	19
Work forms	0	18
Cognitive development	0	8
Project methods and problem oriented learning	0	8
Perspectives of knowledge	0	5
Pupil-active work forms	0	4

Table I clearly shows that subjectively experienced differences in the themes of educational research /and I doubt others would make a very different sample of key words/ are easily verified in this way. The content of the table is commented upon in what follows.

Now to my questions:

1. What were the reasons for the wide adoption of educational technology ten to fifteen years ago?
2. Why did it disappear?
3. What conclusions could be drawn from this history? In what ways should I continue what I once started on microteaching?

In the discussion that follows I am indebted to a research group in Uppsala, headed by professor K.G Ahlström.

1. The rise of educational technology in Sweden.

In the sixties a strong economic optimism prevailed. No least the educational system was expected to contribute to economic growth. By designing school and education in analogy to industry the raw material, ie. the pupils, should be transformed in a reliable way into the desired products. I myself participated as co-author to a script for a CCTV programme for teacher education in which sequences from the car industry were mixed with school scenes. "A reliable way" meant that the contributions of the teacher had to be strictly directed and controlled, systems of methods and materials and programmed instruction became usual. Microteaching in teacher education was intended explicitly to rationalise the expensive practice teaching. By investing in electronics the need for a teacher intensive training in schools was to be reduced. Also, to define the goals of teacher educational in terms of teaching skills was a step on the way to accountability in teacher education.

In Sweden harmony prevailed between the basic views about knowledge and pupils in the official curriculum at the comprehensive school and the behavioristic educational technology. True, the curriculum maintained two different and contradictory views: A humanistic in the introductory part and a mechanistic in the part teachers paid attention to, the part containing directions as to the teaching of all the different subjects in school. By and by the teachers came to name the introduction as the poetic part.

The nine year comprehensive school became in 1969 to an increasing extent a comprehensive school- the differentiation in lines in the ninth year was abolished.

The problem with the heterogenous classes was to be solved by individualised teaching within the class. Great expectations were held for educational technology and programmed instruction. Projects, particularly in mathematics, were conceived to make programmed instruction possible. Concurrently there were expectations of being able to reduce cost by rationalisation - the instructed group was to increase in number and the direction of the work was to be divided between the teacher and teaching assistants. The view of educational development was centralistic - educational theory was to be transmitted to practice by way of an educational technology 1/. Educational research was organised as research and development, in that order, the National Board of Education administered the activities /in cooperation with university institutions/, results were disseminated by way of regional school boards to teachers.

2. The fall of educational technology in Sweden.

In the beginning of the seventies the ability of educational technology to solve problems in school was questioned. It became evident that programmed instruction did not succeed in giving instruction adapted to different aptitudes. Besides general problems of maintaining motivation in the long run, it was evident that many pupils having reading and writing difficulties did not manage the programmes. It was not possible to rationalize away the teacher - the large groups did not work as intended. The problem of individualisation of instruction was still there.

In 1968 a committee was appointed to take a critical look at preschool. Its work resulted in 1975 in a law which obliged the local authorities to grant all six year old children part time preschool /three hours a day/. The pedagogy proposed by the committee was based on cognitive developmental psychology. Behavioristic learning psychology was rejected. The key word in the proposed pedagogy was dialogue. Later this dialogue and its psychological back-up was to exercise a great deal of influence on the revision of the curriculum of the comprehensive school, appearing in 1980. The revised curriculum, differing from its predecessor, is consistent as to the view of knowledge and pupil. It is based on a constructivistic view of knowledge, the pupil is looked upon as a spontaneously active, creating subject, together with the teacher taking part in educational work. /The term "instruction" is almost completely replaced by "work", which refers to teacher and pupil work a-like/.

Looking at table 1 the consistent swing of the pendulum away from the behavioristic position is remarkable. The committee on preschool education did not only work out educational principles concerning children in preschool but for its teacher education as well. In accord with the broad objectives of preschool education, concerning cognitive and personality development, something similar was recommended for teacher education: The borders between subjects should be made less visible, project methods and problem oriented studies in groups should be put into practice. This is not to say that these things started in preschool teacher education but it represents a good example of the new orientation. Committees preparing the revision of the curriculum of the comprehensive school made a break with the so far prevailing centralism of school administration. It was supposed that problem solutions are best handled locally and, as a consequence, decisions on how to spend money should be made at the local level.

1./In teacher education the technology was supposed to be administered by method teachers.Every teacher educator knows that technology contains elements other than those deduced from research,that is to say elements arising from practice be it only the method teacher's own practice.

This new freedom is, however, attached to an obligation publicly to account for decisions as well as the considerations behind. In 1982 the possibilities locally to engage in educational development will be increased because of the replacing of the centralistic model with a model giving the local school much greater influence. The new conditions may prove to be conducive to the growth of an educational technology based on reflected practical knowledge, a type of technolgoy Ahlström /ibid/ asks for.

Lastly, the influence of continental educational sociology meant that the relationship between school and society was focused in the educational debate. Latent values behind educational theories and practices were revealed. As for microteaching there was growing concern about the meager support of the validity of the identified teaching skills, the lack of strategies for organizing the use of the skills and whether the opportunities offered by the videotechnique really were exploited /McKnight 1980/. In my own experiments conventionally prepared /lectures, readings/ control groups did not perform less well than groups having the added advantage of using videotapes.

The much asked for adjustment to different subject matter, grade level and instructional materials did not appear.

When I had finished the experimental investigations of microteaching I imagined that the method teachers would follow up. This happened only to a very limited extent. The reason, I believe, was not distrust in the behavioristic rationale of the technique but too vague ideas about objectives. To be useful microteaching demanded clearly stated behavioral objectives which one way or the other had to be backed up by convincing theory. What happened may be seen as an example of what Ahlström /ibid/ claims to be a tendency among teachers to avoid working conditions which could eventually mean accountability.

3. Looking ahead.

As Travers /1973/ points out there are and have always been technologies without a scientific basis. An educational technology could consist of codified and reflected teaching experiences. Ahlström /ibid/ using Lortie /1975/ identifies a number of reasons why such technologies are scarce in number, the main reason being that teachers working conditions maintain an individualistic approach to teaching. The recruitment to the profession is based on the acceptance, indeed the liking, of these conditions, which because of that are reproduced. To avoid uncritical acceptance of new ideas it appears vital to change teachers' working conditions into a state more conducive to the emergence of codified collective experiences. Technologies thus created would certainly represent a level different from that of the behavioristic educational technology.

All too willingly pedagogic teachers tried to satisfy demands to be practical. With educational philosophy och history pushed away the student teachers were left to exercise whatever personal criteria they could find in deciding to accept or reject the proclaimed technology. Have we learned the lesson?

Microteaching is an idea that deserves to stay in practice. As has been said already a problem with microteaching, at least the teaching skill approach, has been its integration with other elements in teacher education. If project methods and problem solution in groups are usual microteaching might profitably be used to demonstrate the practical implications of proposed solutions. The student teachers themselves should show in what ways the problem, the theoretical work on the problem and the demonstrated practical implications relate to each other. Knowing that a videotaped demonstration is to be produced should add some vigor to the explorations of implications of raised ideas.

Many have voiced arguments to include cognitive variables in microteaching research /McKnight 1980, McLeod and McIntyre 1977/. To me the possibilities of using videotechniques in investigations of teacher cognitions /Winne and Marx 1977/ are the most exciting. Obviously a videotape is a very powerful cue for recall, as shown by Kagan et al /1969/. It offers means of detailed inquiry into teachers' /and students'/ cognitive processes during a lesson. Considering Bassey's /1981/ review on the relative merits of search for generalisation and study of single events this only adds to the charm of such an undertaking.

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Appendix No.5.

THE UTILIZATION OF EDUCATIONAL TV IN TEACHER TRAINING IN THE EUROPEAN SOCIALIST COUNTRIES THROUGH THE EXAMPLE OF THE GDR

Hans-Georg Heun

All the European socialist countries started using educational television for training purposes at the end of the 60's, beginning of the 70's. Since then they have made great efforts in the development of technique and in its setup, in theoretical establishment and in the examination of utilization and effectiveness.

Basic utilization of TV at colleges in the socialist countries.

It can be stated that the use of educational TV in teacher training in the socialist countries is based on the following general principles:

1. The use of TV in the socialist countries is always based on a defined document, determined by the state. In this way television is used on the basis of the same basic concept in all the countries. Therefore the main task relating to television is to help - serve the objectives defined in the state document to a larger extent; - improve the dissemination and understanding of demanded educational content; - improve qualitative demands in the organizational-methodological development of the training and educational process; -create a

possibility for the research and implementation of new organizational-methodological solutions and objectives. The main curricula for teacher training demand or recommend directly the utilization of television.

2. The utilization of television in colleges serves the following pedagogical principles:

- close relation between theory and practice
- creating unity between scientific training, moral norms and values that are expected of a teacher by the socialist society
- unity between education and research
- unity between the independent, creative and responsible student attitude and the leading role of educational personnel.

In the following I would like to speak of the importance of television in realizing the principle of the unity of theory and practice. For example until now the observation of theoretical problems in practice was not suitably solved at theoretical science and educational science lectures. This has great significance from the point of view of the standard of training and educational activity, just as practice oriented training and the purposeful preparation of students is important from the aspect of their future profession. With the help of television it is possible to demonstrate the practice of training and educational situations during educational science lectures or to give and insight into production processes in the case of natural science, technical or polytechnical lectures. This may help students in better understanding theoretical knowledge. At the same time it motivates them to understand and learn practical problems, reflect them theoretically so that practice and theoretical thinking will form an entity. In the future we must strive to make students appreciate the efforts of active workers so that they will have a more positive attitude, greater working morale towards their profession.

3. In accordance with training concepts the utilization of television concentrates on larger collectives, that is mainly on lectures and seminars in order to increase their effectiveness.

In this way a very favourable ratio of utilization and effectiveness can be obtained. Nevertheless, in our colleges the problems of students relating to specific abilities and skills must be controlled and taken into consideration to a greater extent. It derives from this that there are special possibilities for the use of television in different forms of individual training. Naturally these depend largely on the objective possibilities of the school. With these forms of individual utilization it is important that the leading role of the instructor should remain and close contact should be established with theoretical training.

4. Television cannot be regarded as a substitute for other teaching aids or forms of training. Use must be made of its specific possibilities especially in the realistic presentation of practical processes, e.g. as "practice substitution" in places where other aids are insufficient. Other equipment and forms keep their own importance and through the use of television obtain a new position or their effect is enforced. So television exerts its influence in close contact with the words of the instructor, together with other audiovisual equipment, text books and other written matter and the practical observation and activity of the students.

Review of the objectives and forms of utilization of television in teacher training in the GDR

Practically all the universities and colleges of the GDR have the necessary technical basis for the large-scale and widespread utilization of television. Within this we distinguish the following forms:

- live TV transmissions, for example within an instruction room as a so-called readercamera, or from a studio or other recording place as a classroom.
- TV notes prepared from parts of public television programme or from programmes produced in college studies.

Television is utilized in the following fields:

- vocational training, experimental lectures on science, language exercises in teaching pronounciation in foreign languages, sports training, etc.
- in educational science; television is used in the first place in this field.

TV notes in the teacher-learning process can be used in the following way:

- as a demonstration material, e.g. for connecting theory and practice, activating mental effort in solving theoretical and practical problems, for explaining evaluation criteria and the evaluation process itself.
- as a practicing process, e.g. in case of mental pedagogical activity closely related to practice, like recording, observing, analysing, evaluating, decision making, utilizing theoretical knowledge in practice or the instruction of mentors and tutors in the unified utilization of evaluation criteria in practical schools.
- as an aid to self-confrontation.

Example: the use of TV notes in teaching didactics.

The curricular programme sets the following objective: "Didactic training prepares the student to judge educational situations in a professional manner and expecially according to social expectations and to make well-founded decisions using didactic knowledge".
In order to achieve this training must be prepared from the content and methodological side in which the TV notes play an important role.

In education theoretical knowledge is demonstrated or explained using TV notes. This may happen in a topic like "establishing ambitious, problematic learning", "forms of cooperative learning" and "presiding over educational discussions". In the course of a seminar students are assigned the task of recording, analysing, evaluating and preparing alternative solutions for short educational scenes on the basis of criteria and theoretical measures that they had heard in a lecture. Thus, the topics of the seminars coincide with that of the lectures: "the relation of the objective and course of the lesson", "proper definition of objective and raising of questions at the beginning of the lesson" and "problems in conducting educational discussions". In this way several problems have to be elaborated on every seminar and the same mental effort has to be exerted and a practical process is created that helps form abilities to a great extent. Later on the seminar experiments are carried on in school in the frame of pedagogical-psychological practice. Nevertheless complete lessons have to be prepared on the basis of all criteria that were topics of lectures and seminars and recording, analysing and evaluating also has to be done. Before starting practice there is a separate exercise for doing this in which this complex activity is performed by students with the aid of a lessen which is shown on television.

Forms of cooperation in the GDR national seminars, expert meetings and conferences are organized occasionally on the use of television in colleges. For example there is an annual seminar for those dealing with educational science on the preparation and utilization of TV notes in Berlin at the Humboldt University. This is a workshop where productions of different colleges are presented and discussed. A committee composed of representatives of universities and pedagogical colleges deals with problems relating to educational TV cooperation.

Production has been started within the central TV programme of different educational scenes; these are prepared at Humboldt University and are utilised by numerous colleges.

Problems of using TV at colleges

In spite of the considerable development that was made possible by cooperation there are still many problems that have to be solved. Problems like this are always emerging in connection with the training of students because of the ever increasing demands especially those for preparing and utilising TV notes. Some of these are as follows:

- ability of teachers to work with TV; information on the importance and possibilities of using TV, guidance for preparing the necessary written materials, etc.
- elaboration of programmes that may be exchanged between colleges in order to increase effectiveness and obtain a better cost-effect ratio.
- quality of TV notes and programmes.

Final remarks

Work in colleges of other socialist countries on using TV in teacher training is conducted in the same or similar manner as the example of the GDR has shown.

Appendix No.6.

Walther Zifreund

MAIN TRENDS IN EDUCATIONAL TECHNOLOGY AND IN THE USE OF VIDEO TECHNIQUE IN TEACHER TRAINING IN THE WEST-EUROPEAN COUNTRIES

Educational technology is connected with the general trend from teacher centered procedures to learner-oriented approaches, and from large group arrangements to small group work and individualized forms in the use of technical media for teaching and/or learning puposes.

This paper tries to describe this process in the field of video techniques in teacher training. As a consequence of the lag caused by the second world war the innovation in educational technology in the West-European countries was "imported" from the United States. The isolation from the research and development knowhow did not strike the United Kingdom so hard, because the American research and development results were accessable without a language barrier. The Scandinavian countries had also a better contact to the international research, but West Germany, for example, has learned the necessary information with a delay of ten years. As far as information from the Socialist countries are available, the trend which is mentioned above does not seem to be restricted upon West-European countries but is perceptable more or less worldwide.

Concerning the application of video techniques as means of teacher training there are at first to discriminate two purposes for the use of video:

- live transmission and/or video recordings for teaching-learning puposes used as in all other subjects for video-assisted or video-substituted "lectures" or demonstrations and:

- live transmission and/or video recordings in the field of "learning to teach" in the "clinical part" of teacher training.

Probably the first point would be the less interesting, but its tendency influences the consideration of video applications in the field of teacher in a more general manner. Live and/or recorded video lectures and demonstrations make it possible to reach large groups at pleasure, as is shown by Television every day and everywhere. The medium seems to be predestinated to be used as a "mass medium" /Schorb 1965,9/.

Instrumentally considered, video appears as a means to realize also antithetical purposes: big brother may be watching you, an artist may show you a performance, one may be coached up with the use of video recordings et cetera. Like any other instrument video for itself cannot be "good" or "bad", its goodness or badness is the effect of the willingness and/or the capability of its user to realize desirable or rejectable aims and goals. But the use of video in different situations generates also environmental changes, produces special reactions of persons, who are confronted with effects of video transmission or video recordings, utters expectations or fears, sets stimuli and provokes readiness for activities. That cannot mean that the technical device "video" as an instrument could get the function of a purpose. But it is wellknown that the use of instruments leads sometimes to non-desired and/or unnoticed effects.

1. Environmental changes of video applications in the clinical parts of teacher training programs

In asking what video achieves in clinical settings of teacher training programs we have at first to map the video assisted situations in this field and the reactions and effects which are induced and produced by these environmental changes. We can try to describe this in the development and history which the new means video has taken in the clinical part of teacher training during the last two decades.

If I am learning to swim or to drive a car I will act more freely and impartially if I have no spectators who are not concerned. Generalized: before having learned a special behavior I do not like to have non-concerned spectators looking on my trials and errors. Only in teacher training programs I am often constrained to learn to teach in the presence of a lot of non-concerned spectators, as teachers, groups of students, the class of pupils. That is bad enough. Non the less these persons were included in the same room and situation before using special technical aids for observation, transmission and recordings.

Now the technicians are coming. They divide the room with a partition of mirrors for observational purpose. Observes are now able to look on me while I am teaching, but I do not know if, how many and who is observing me during my first trial and error steps learning to teach. The technicians may also make an installation of one or more video cameras to transmit what I do to unknown populations and/or they may also make video recordings which let become reproducable my trials and errors in all details. My mistakes may now be available in a life long documentation bank.

Everybody who is able to use common sense is able to remark what the consequences are. In this environmental arrangement video is aggravating the learning to teach situation very hard. I am losing the rest of a free feeling if I have had still a rest of it before. Can this be the desired purpose of the use of video as a means of teacher training programs? And what is the effect of this aggravation?

As everybody remarks looking on this situation the teacher trainees try to show as far as possible no behavioral weaknesses and so they produce a very restricted repertory of teaching activities. The primary effect of introducing video in teacher training programs seems to be here increasing embarrassment for the trainees and decreasing abundance and comprehensiveness of their behavioral repertory of teaching activities. The following time of teacher education can be seen now as a sort of desensitation training to overcome this shocking and depressing start of the vocational carrier.

Nobody did wish this but a blind trust on progress using technical aids in education lets people overlook the most simple observations and impressions.

The described deficiencies I would like to characterize as the "clumsy repressive and anonymous video watching procedure" which lets become teacher training staff members a sort of "voyeur". Nobody would choose such a situation if it would be possible to avoid it, except perhaps a masochist. If we arrange teacher training programs in this manner we should realize what we do. Perhaps we have done it a long time without noticing what we do. These hypotheses /Zifreund 1966/ in the meantime are evinced by extensive research results /Peck Tucker 1973./

2. Video recordings as a means of "self-confrontation" in the field of teacher training

Self-confrontation we are practising every day looking in a mirror. The reactions sometimes are positive, sometimes negative. Looking into a mirror we are reacting mostly less naturally, we are making our mirror-face. Nevertheless the situation is so far natural as this feedback instrument shows us what we look like as seen from the outside and we are seeing ourselves in the real present moment. Video recordings add to this a new dimension: now we can look at our past behavior. To be occupied with my own past is not without danger of egocentrism or even neurotic implications, if this happens without connections with future tasks and problem solving activities. Learning to teach activities are task and future oriented. If I add to these activities video self-confrontation it may have the effect of decreasing task orientation and of growing up a sort of egocentric tendency. We should avoid this aspect of video self-confrontation in teacher training programs with future oriented procedures. So teacher trainees should have the opportunity to get the first contact with video self-confrontation in play situations

/interactional improvisation scenes/, where the roletaking situation creates unembarrassed acting /U. Zifreund 1971, 1976/. And additionally teacher trainees should have the opportunity to professional behavioral training /Zifreund 1966, 1976/. A review of video self-confrontation research /Fuller Manning 1973/ shows, that video playback has in general no negative effects if the situation has a task- and problem-solving orientation. Superficial applications of video feedback in the field of teacher training are favouring additionally the concentration on "cosmetic" details as body attitudes, gestures and mimic expression. These items are not insignificant in the framework of teacher training as nonverbal behavior components. But this aspect should find its position within a system of teaching competencies. A "natural" sort to use this "artificial" technical approach of video documentation of past behavior without stress reactions and anxiety as consequences seem to be procedures of video assisted interaction analysis of teaching learning behavior /Flanders 1970/ incorporated into a behavioral training of teaching skills. There teacher trainees should not analyze whole school lessons but only crucial points of the own teaching sequences.

3. Video playback: a temptation for tutors to avoid video documentations of own real teaching sessions

Teacher training is at the most places also in West European countries not "clinical training" in the sense, that active and competent teachers show to the trainees how teaching should take place, demonstrating the own real teaching competencies. None of us would like to go to a surgeon, of whom we know that he has made his last operation decades before. And none of us would like that this surgeon should teach young physicians. Only in the field of teacher training we are used to tolerate this crazy situation. If I go as a professzor of education to a teacher training college or to a university to teach teachers then I stop my classroom teaching at school! But I continue my teacher training job and I am giving criticism to young student teachers every day while my own classroom teaching experience grows old and older every day.

Microteaching /Zifreund 1966, 1976, Allen/Ryan 1969, Brusling 1974, McIntyre et al. 1977/ could be a very fair opportunity to change this bad custom. A microteaching session needs no more time than five or ten minutes, a whole classroom lecture would give the opportunity to divide a classroom lesson into three or five parts, and every part can be taught by another person, so that the tutor would have without any difficulty the opportunity to play the same role as a trainee has to do within the framework of a clinical teacher training program. Video recordings are part of the usual feedback instruments of microteaching programs. But it is very rare to find a microteaching position where the coach plays an active role and teaches the same way the trainees have to do it /Zifreund 1966/.

Video playback in the framework of clinical education programs seems to reinforce the disastrous tendency of the responseable training staff members to avoid video documentation of the own real competencies. If this happens video playback does not act like a help and device for vocational training but it seems to produce the tendency to make vocational training a lot more repressive and dysfunctional. But this effect is not caused by the technical device video, the people who are using video do produce it, sometimes probably without a real knowledge about it. However, we should use the technical device video with a very high degree of reflection and self knowledge and self critique.

4. Video assisted interaction analysis: an opportunity to focus attention on crucial points of teaching learning processes and to prepare future teaching activities

The video playback of a classroom lesson is an important means and feedback instrument in the framework of teacher training programs. But it should not be used purely and without the assistance of an interaction analysis categories system. Meanwhile there are so many systems of interaction analysis that there is no possibility to know all aspects of systematic observation categories which may be useful in teacher training. It is not important which of these systems is used, but that systematic observation is incorporated. The pure video playback seems not to be an effective learning situation. I cannot remember all the details of a classroom lesson. As soon as the playback ends I have forgotten a great part of details and I am unable to give a precise data based analysis. The unstructured video observation /it means observation without the use of a system of categories related to the single teaching-learning event/ produces dangerous implications mentioned above which we should avoid in teacher training programs.

For educational research quantitative measurements may be indispensable at all. For teacher training interaction analysis should base upon time line displays like the one used by Else Müller-Petersen some decades before /Müller-Petersen 1965/ and like the time line display version of the FIAC-system /Flanders 1970, 1976/. The student teacher gets hereby the opportunity to analyze her/his own teaching sequences as a process and to discover crucial points within these sequences. So it is possible to take a start for planning procedures related to future teaching activities. Time line displays of interaction analysis can also be used quantitatively and computer assisted so that the trainee can get back the measurements of the own teaching sequences without any delay of time. These measurements are the most precise evaluation feedback we can give to the trainees and the trainee can manage this as a self-evaluation procedure. So we are able with the help of educational technology to avoid the awful evaluation by tutors in teacher training programs, because this self-evaluation is very reliable and program-oriented.

5. Educational technology: an opportunity to incorporate more responsibility earlier into teacher training programs

One of the most dangerous points of present time civilization is the fact that the young generation has too long to wait without satisfactory responsibilities and competencies in more or less theoretical vocational education programs. There they lose the best years of life in restricted situations. This seems also to be the case in the field of teacher education programs.

A more clinical orientation of teacher education could have a remedial function in this situation. A more or less independent use of technical devices:

- video equipment
- computer assisted interaction analysis feedback

could function as an element which lets increase the degree of responsibility, activity and independence within the arrangements of clinical teacher training.

We should prefer these possibilities of a humanistic approach in educational technology and we should avoid the abuse of educational technology as a means of more repression. Perhaps the avoidance of repressing elements in school and in vocational training may be a very important factor for peace in the world. Less repressive educated men may have a greater readiness to live peacefully than repressed people.

This paper tried only to describe some situations which are observable in the field of teacher training in connection with the use of technical devices, especially the use of video /and a little bit also the use of computers as a feedback instrument/ in the clinical part of the programs /Clark Rogers 1980/.

Of course video and computers will be used more and more in teacher education. That cannot be the problem. The very difficult problem is to observe the special situations very carefully to find out the desirable use of technical devices and to avoid the many temptations of abuse which are very easy to realize.

Non of us can wish for his or her own person to live a life observed and repressed by "big brother", non of us should then also be ready to tolerate any inhuman use of technical devices in the field of teacher training as far as his or her responsibility and influence reaches.

6. Consequences

This short overview of the special situations where technical devices are used in teacher education programs shows:

- the need of a careful and detailed situation analysis to avoid abuses of technical devices, and
- a certain preference to individualized applications of video techniques in the clinical part of teacher education programs as
- microteaching
- interaction analysis
- computer assisted self-evaluation.

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Appendix No.7.

Christian Miesch

THE DESIGN AND PREPARATION OF TV NOTES IN THE FIELD OF EDUCATIONAL SCIENCE

This paper has the objective of examining the possibilities of achieving noticable development in the quality of educational notes.

This is why it deals mainly with the users of TV in the field of educational science and would like to emphasize the importance of cooperation in the phase of design and preparation. We would like to draw attention to the responsability of the group ordering TV productions. The qualitative improvement of this college teaching aid is to be assured keeping in view the importance of the ability of expression and that of effectiveness. Finally, with our explanation we wish to orientate rational design and preparation work ensuring good quality.

The highest scientific level is necessary for us to be able to implement the tasks set by the 10th Congress of the Party. Among others this calls for the careful didactic-methodological design, preparation and production of every educational aid. This includes college teaching aids and above all TV notes used in the field of teaching educational science which assure that the basic principles of socialist college training-the unity of instruction and education, of teaching and research, of theory and practice- are observed. A fact which was mentioned several times at the 5th College Conference.

Usually TV notes should be prepared at the college /in contrast to centrally produced modern, audiovisual college teaching aids/ before they are utilized in the educational process.

Preparing a note like this is a very labour-consuming process. It requires pedagogical understanding from techniciens and technical understanding and adaptability on the part of the teacher, because notes meeting the objectives to the utmost can only be prepared in case of constant, harmonic cooperation between instructor and class, customer and producer. Careful design and preparation is especially important in the realization of these demands.

The design phase in case of a TV note starts at latest when there are reform problems in the teaching concept when the annual updating and quality improvement in the field of science shows where there is a possibility for using TV for increasing the effectivity of the educational process. It is better if the plan for the production of TV notes extends further than the school year and there is systematic and long-term planning and preparation. This is the only possible way meet the demands of the college regarding teaching aids.

In the following we wish to determine the place of notes relevant to teaching educational science in the teaching process. So we do not wish to discuss problems of design and preparation, which occur in case of other types of notes. In case of an educational process it is a basic requirement that it should be totally "without organization" in order to exclude disturbing effects as far as possible. Regarding these totally well founded notions /1/ we can easily arrive at the incorrect assumption that it is unnecessary to design and prepare educational notes in special manner. In fact the reverse is correct: the less occasion there is to interrupt, correct or show the educational process the better the event recorded in picture and sound should be chosen, debated and recorded.

This means on the one hand that the objective should be clear from the both customer's and the producer's side, on the other that we must search for the instrument best assuring the attainment of our objective.

This gives rise to a two-fold problem that must be cleared up: One side of it is that the pedagogical demands of the college must be defined, listed in an exact way; the function of the college teaching aid /HUM/ we wish to create must be clearly defined.

The other level is the pedagogical process that is to be depicted in school, so that education is in the centre, the ability of expression of which together with the pedagogical objectives of the college must be adequate. From the aspect of both levels it is important that much effort should be put into design and preparation work. There are resulting aspects which are in contact with the phase of design and preparation concerning methodical realization and content. Educational notes cannot be simply regarded as the recording of a lesson. It greatly depends on its specific function and the producer how it is created. In the realization the material-technical conditions /especially recording equipment/ and preparation of lesson /suitable for TV/ play a decisive role. It is imperative that those participating in the realization should discuss the objective, content, methods, modes of operation and behaviour in order to coordinate them and to keep to them consistently during realization.

The following can be expected as participants:

a/ representative of the field of science putting the order /potential user/

b/ representatives of the fields realizing production /pedagogical advisor of the college, cameramen, director/

c/ representative of the school /teacher, mentor, etc./

The discussion should include the following aspects:

- question of instruction
- questions of information
- questions of exchange of information
- questions of new ideas and their discussion
- remarks and recording in relation to the product.

At the discussion the representative of the field of science putting the order must give the general demands and most important ideas from a pedagogical aspect. This is the main source of information for the producer.

The field realizing production /the HIF within the pedagogical-technical department/ is responsible for making the customer reply questions not yet answered related to planned production. All the information that is needed for the good quality production of the TV notes must be given by the customer. The exchange of information and discussion of ideas plays an important role in this. It is especially important to give information on possibilities or barriers resulting from objective features and external conditions.

In order to facilitate the understanding of the specialities of TV technique we must think of having sufficient material for examples /video notes/ in case of dramatizing and directing as well.

The representative of the school, usually an active teacher, should be informed of the planned course of the lesson, the methodology and teaching aids to be used, the necessity of FUR, etc.

In order to give support to the coordinating discussions it is practical to distribute among the participants a questionnaire containing the most important questions some time before. In case of HIF all potential users will have the following questions put by the producer. The first series of questions refers to the field of science putting the order. The aim of the questions is to initiate discussion and clarify before production the objective, its essential content, its structure, utilization of the notes, picture and sound visualization.

1. What is the general function of the production from the pedagogical and methodological aspect?

Here it has to be decided whether

- knowledge should be transmitted, deepened or should it form the basis of practice or
- it should motivate or stimulate or help make the teaching and learning process more rational.

2. What special function does the production have?

Here it must be decided whether we should
- present an example
- discuss a problem
- extablish a basis for the organized realization of practical pedagogical activity in near-practical situation /analyse, record, evaluate, etc/.

In this relation we must decide whether the notes should illustrate an orally introduced pedagogical fact, or is it a concrete basis for oral explanation and for the interpretation of this?

3. Is the lesson as an organized form the optimal form for illustrating the pedagogical process we wish to record? /small group, whole class, micro-teaching, etc/

4. To what extent will utilization of the educational notes be prepared from a methodological point of view, or will they be elaborated later?

5. What preparatory or post-elaboration material, teaching aids will supplement the main "educational notes", which ones can or must be used, prepared or developed /e.g. scripts for students, suitable schemes for evaluating the notes, transparancies with exercises, etc/

Exhausting answers to these questions result in the following ones regarding the place and level of utilization.

6. What form of education will the notes be used in? /lecture, seminar, practice, individual training/

7. Which special educational field is the note designed for?

Can it be used in other fields of educational science teaching under given circumstances?

In this process what should be considered?

8. Which are the requirements towards the teacher?
- has the teacher got the necessary communicative ability?
- how well does the teacher's temperament, language /phonetics/, mimicry and gesture suit the notes?
- is there an adequate teacher-student relation in the class to suit the objective?

9. Into which subject, form, part of the material, lesson can the event be placed?

10. Should the whole lesson be recorded or only certain parts of it?

11. What should the title of the notes be? /precise formulation of the title, branch of study, topic in the lesson, name of teacher, class, name or number of school/

12. In case of using teaching aids /slide, transparency, film, model, etc/ is it important that the teaching aid should be seen in detail or is it enough to have a total plane shot of it?
This question must also be answered in case of a picture on the wall.

13. What visual emphasis suits the objectives, what does the didactic-methodological function of the college demand from the educational notes within the educational form?
- when and how does the teacher have to appear?
- do we wish to observe single students or groups of students? /e.g. when the stutents answer, are at the blackboard, work in exercise books, groupwork, etc/
- is it necessary to present textbooks and exercisebooks in such a way that the students will recognize them?
- should the teacher and students face each other? /e.g. in case of staff-meeting, teacher/student lecture etc/
14. What ideas are there about production in a narrower sense

- picture composition /lighting up with sound, blinker, camera movement, paning, total plane, mixing/
- sound composition /teacher's voice in foreground or background, emphasis on student replies, etc/

Another set of questions is related to the teacher who prepares and holds the lesson.

15. What didactic structure, methodological setup would suit the lesson?

16. How should the place where the recording will take place be equipped, prepared so that the conditions necessary for the subject classroom and its atmosphere can be felt?

17. What teaching aids and equipment will be needed?

18. Will diagrams be used during the lesson and if so, what size should the text and picture be /script suitable for the screen/?

Regarding the answers to the questions the representatives of HIF must give the necessary ulterior information in order to take into consideration in a differentiated form experience of the customer and of the teacher in the classroom.

Information like this contain the following:

- the system of technical-organizational conditions
- sample presentations on the basis of notes available
- the special conditions of behaviour in the studio
- special preparation of teaching aids that are to be used in the lesson
- recommendations for scenes, maintenance of technical equipment

In the direct preparatory phase of production the decisions taken at coordinating meetings are executed. In the meantime it is especially important that enough time be available for the preparation of realization, so that they should be effective from the point of view of production /e.g. preparation of graphic or photographic materials, special demands relating to the setup of studio, etc/

In the phase directly preceeding recording the customer should discuss all organizational questions with the school /director, subject teacher, class, deadline for production, cooperation in the technical preparation of the production, transport, technical demands of lesson design for the school/ and with the HIF field. He is to recommend a title to the representative of HIF and give all data needed for captions and subscriptions.

In this phase the "TV reacher" should not only conduct the "normal" preparation of the lesson, but should also make some preparations special to TV:

- creating the blackboard figure
- choosing and preparing teaching aids that will be used at the lesson
- preparing printed matter for the transmission of information without loss
- technique of asking, organization of certain motion processes, dressing of teacher and students, etc.

Lastly the HIF field has the following tasks in the preparatory phase

- graphic design of lead and end tape as well as that of teaching aids
- special construction of the studio
- installation of cameras, their preparation, assuring the personnel conditions of the production.

Finally, prior to the recording the members of the "TV class" are acqua-inted with the work of the studio, including hygienic, safety at work, fire regulations.

It is favourable if this happens a few days before recording, as the novelty of the situation, especially regarding the first meeting with studio equipment may effect teaching, but in this way may have faded away and will not cause a disturbance.

This paper does not take into consideration the demands of secondary production. Similarly problems of evaluating and utilising educational notes were not mentionned either. All questions relating to these fields can be listed among the problems TV research should solve. These will be dealt with later on.

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Appendix No. 8.

STEFAN POZLEP

BRIEF REPORT ON THE ELECTRONIC CLASSROOM OF THE MARIBOR PEDAGOGICAL ACADEMY

Realization of the plan for the so-called electronic classroom at the Maribor Pedagogical Academy was completed a short while ago.

This is an electronic equipment that is a component of the whole technical system which serves the modernization of the whole educational process.

The fundamental reason for introducing these technical applications into educational technology was to make possible the constant and direct feed-back of information in the educational process.

This is even more important in teacher training institutes because it makes possible the better recognition of the higher efficiency of the educational process organized in this way for the students, that is the teachers-to-be. The feed-back room, which was designed in a modular way offers two basic working methods:

1. the instructor can feed the results directly into the store /B/
2. through the reaction of students in one of the groups the optimum time setting for running the programme can be achieved/a_2/.

For optimizing the evaluation store and the programme the electronic classroom has connection with a time-sharing electronic computer. This connection is established through an asyncron exchange terminal.

At the moment this connection with the computer has not yet been realized.

Through a special video terminal the whole system of the electronic classroom is integrated with an internal TV system.

TV sets make possible the reception of external or internal TV programmes but can also be used for displaying the data stored.

In this way by data statistically processed individual students'or groups' as well as data necessary for evaluating the quality of the programme can be received. Non-conventionally designed equipment like this, combining the communication system and data processing system into a functional unit gives a whole spectrum of possibilities that are especially reflected in the automatic method of work. Programmes of very high quality can be elaborated with a value of permanent usability.

The basic problem of utilizing the feed-back classroom is especially signified by the preparation of programmes of high value.

Perhaps it would be practical to have a discussion or exchange of experience and ideas in this topic.

Inscriptions on the 1. figure

U_1 .... U_n	students
Z	counter
L	instructor
R	reply system
M	manipulating switch
S	scoreboard

Inscriptions on the 2.figure

SP	store
P	programmes
D	digital apparatus

Figure 1.

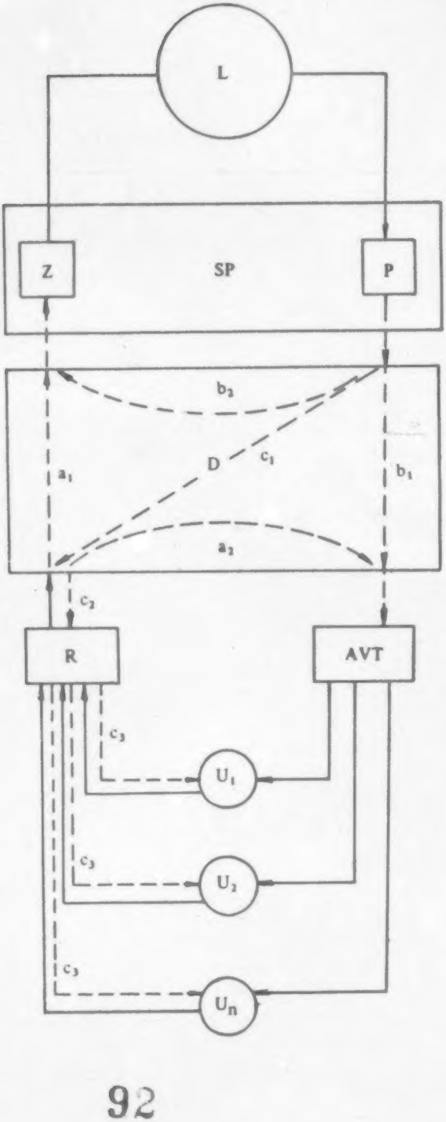
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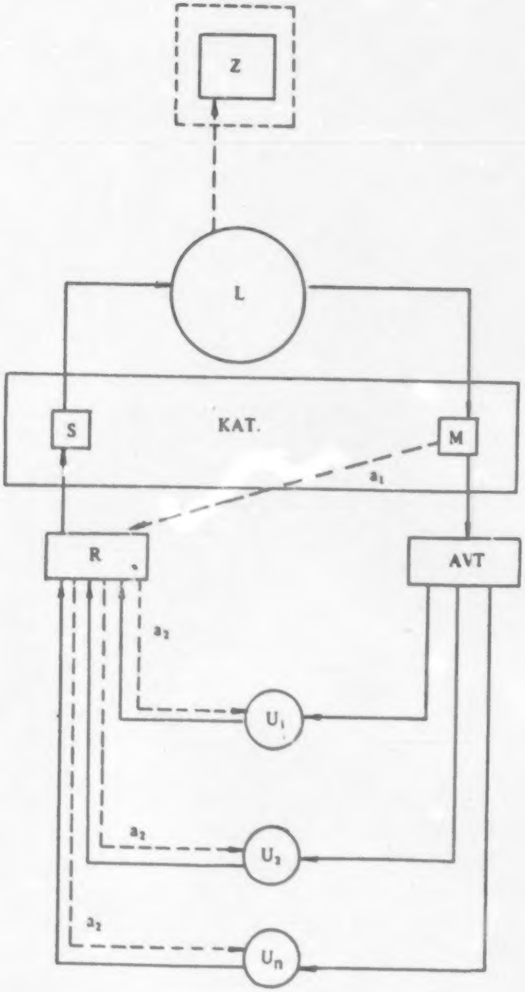
Figure 2.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Appendix No.9.

Olavi Nöjd - Matti Suonperä - Jouko Kari

THE ANALYSIS OF CRITICAL INCIDENTS IN TEACHING

The didactic usability of information on critical motion items as rated by teacher trainees.

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Summary of the Suonpera-Kari research

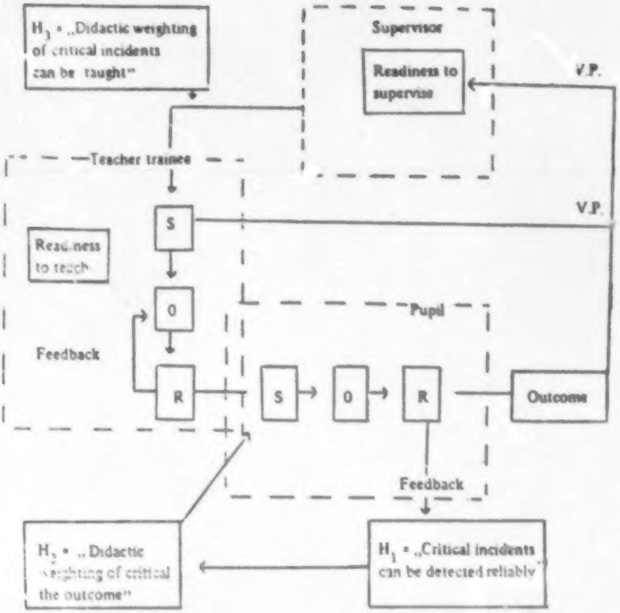
The supervision of teaching practice and thus also the outcome of teaching could obviously be improved if the teaching acts that are being taught are dealt with before the teaching situation in as lively and demonstrative fashion as possible. Educational technology today offers better possibilities for this than ever. The starting point of this study is the hypothesis that in order to become a good teacher of practical subjects the teacher trainee does not only need to adopt the general didactic principles, but he/she should also be able to analyze the actual performance i.e. to observe and emphasize the critical points in it. The basic problem of this research project was originally: "How to efficiently help teacher trainees notice and correct erroneous performance". The aim is to develop the didactic theory of practical subjects teaching into a general form which is also easy to apply in practice. The theoretical model of the project is shown in the figure below.

So far our study has been restricted to the preparation of videotapes dealing with different themes of technical work and handwork /textile/ in the comprehensive school, as well as to the preparation of concise /10-15 min/ CIO-tapes /Critical Incidents Observation/ based on the videotapes, and to the evaluation of their usability in teaching practice. The subjects of the project /N=78/ were 3rd-year class teacher trainees at the Teacher Education College of the University of Jyväskylä. By means of a 72-item questionnaire they rated the usability of the tapes as a "test group" which used the CIO-tape in their studies, and as a "control group" which saw the original tape.

The results were encouraging: the internal consistency of the questionnaire was .92 when computed by means of Cronbach's alfa-coefficient, which can be considered good.

The results indicate that the videotapes prepared are on the whole very appropriate and useful when the teacher trainees prepare themselves for teaching and teacher's post also in more general terms. An item-based scrutiny gives a clear picture of the usability profiles of both the original tapes and the CIO-tapes i.e. of the good points as well as the restrictions of the tapes.

The better usability of CIO-tapes compared with the original tapes is indicated best by item 26 "CIO-tapes help perceive the amount of critical points that can be included in one single lesson" /p .02/ and by item 44 "Feedback that the tape provides on one's own teaching helps to detect the shortages in planning". All the trainees in the group gave a 100 % affirmative answer to both items, and also the control group obtained 87.1% and 96.8% as corresponding figures. A considerable restriction is, of course, that neither tape type reveals everything about the initial situation. When differences between sexes were examined the hypothesis that male trainees' attitudes towards didactic instructions are different from those of female trainees, gained support of statistical significance. Among female trainees


H3 = „Didactic weighting of critical incidents can be taught"
Supervisor
Readiness to supervise
V.P.
Teacher trainee
S
V.P.
Readiness to teach
O
Feedback
R
Pupil
S
O
R
Outcome
Feedback
H2 = „Didactic weighting of critical the outcome"
H1 = „Critical incidents can be detected reliably"

D.P. = didactic feedback

the emphasis seems to be on correct performance, whereas male trainees would more often like to have a greater variety of teaching models than the tapes represent. These observations may be connected with more general aspects of creativity, which of course have significance from the point of view of teaching. Further investigation is also required to find out to what extent the differences observed are due to the differences in the nature of technical work and handwork textile/.

Differences were in addition examined between teacher trainees who had only done the basic course and those who had done the extended course, as well as according to whether the trainee was to give a lesson in handwork or not. Those who have studied the subject longer find the more analytic teaching approach represented by the CIO tapes to be more relevant from the viewpoint of teaching than other trainees. On the other hand, those who were to give a lesson in handwork were somewhat more critical about information offered by the CIO-tapes than those who did not have to give a lesson. The next phase of the study will try to provide an answer to the working hypothesis: "Teacher trainee's CIO-weighted teaching improves pupil's performance." When exhaustive didactic theory formation is strived at the research approach should be extended also in the direction of cognitive and affective components of the didactic process.

Descriptors:

- craft
- observation
- student teacher
- teacher education
- didactics

The Institute for Educational Technology gives resources for research projects like this.

MARGARET JENSEN: Appendix No. 10.

My diffidence in presenting this contribution at a conference which includes such a distinguished group of experts in the field of education comes partly from the fact that I am neither a University Researcher nor a College Lectrer: I am a teacher in a large comprehensive school with approximately 1200 pupils on a campus of approximately 2500 pupils. Our neighbouring school is a separate entity but there is a pooling of resources for Sixth Form Advanced Level teaching. The pupils in the two schools are aged from 11 - 18 at all ability levels from borderline E.S.N. children who require special remedial teaching, to pupils of high ability who go on to further education in Polytechnics and Universities.

I am personally involved in the teaching of pupils from 11 - 18 and though I teach one examination course in 19th and 20th Century History the majority of my classes are English: my professional task is to teach the understanding of the written and spoken word, the ability to communicate - my own particular interests lie in communication and creative writing.

The observations I have to make are drawn from my own professional experience over a number of years and they are therefore specific, particular, personal and descriptive rather than statistical or analytical.

The essence of the Education System in my own country, as I am sure many of you know, is that it is a system with a high degree of decentralisation and considerable autonomy at all levels. Each county must provide education for all children from 5 - 16 and further education in schools and colleges from 16-18. Educational provision for the under - 5s has virtually disappeared as a result of financial constraints. A percentage of each County's education budget will come from Central Government grants: the remainder is locally financed. The result is a wide county-to-county variation in per capita spending and in pupil-teacher ratios. Educational journals such as the " Times Educational Supplement" and "The Teacher" from time to time publish "league tables" from which one may discover "good" and "bad" counties in terms of spending on education.

As to a classroom teacher my only constraints are finance, pupil behaviour and motivation, parental pressure and the needs of public examinations with published curricula at ages 16 plus and 18 plus - you will notice a degree of irony when I use the term only constraints. Nevertheless it is certainly true to say that I have considerable freedom of choice in lesson content, the teaching methods and materials I use and the use or non use of technical aids.

This degree of autonomy existing at county level and at classroom level finds its counterpart at school level in the freedom by which each school may spend its capitation allowances - grants - as it wishes. The result is that some schools are therefore very well provided /even over provided/ with hardware: others less so.

I would like to quote two examples to illustrate this diversity: both are large comprehensive schools in my own county.

School A has a resources centre with a full-time member of staff: it is a model of good practice. It recognises that teachers may have little practical knowledge of technical aids - the problem of under-use of resources by teachers afraid of machines is, I suspect, a common one. In this school it is avoided by each teacher being given an illustrated leaflet showing the equipment available and giving a brief but lucid description of each machine, its use, limitations and potential. A second booklet, also issued to each member of staff is called "Making Teaching Materials" and advises teachers on methods, possibilities, illustration, layout and design. From the organisation of this one aspect of educational technology within the school it can be deduced that other equipment is deployed with similar efficiency.

School B is equally well-equipped but considerably less well organised. Its equipment includes overhead projectors, slide projectors, a film projector, tape recorders, record players, record and cassette collections /music and spoken word/ and a language laboratory. Three staff rooms have duplicating equipment, other duplicating equipment at several points in the school includes a photocopier, heat copier and duplicators. There is a conventional television set, two video recorders, a colour video receiver and a portable black and white video receiver.

This battery of technical equipment is used with varying degrees of energy and expertise by teachers for whom economic constraints and severe financial cutbacks have meant larger classes and reduced marking and preparation time. Many teachers in that school spend from 84% to 92% of the total available lesson time teaching classes of up to 30 children. Additional time of about 3 hours per week is spent with a teacher's tutor group of 28-30 pupils: the teacher's pastoral responsibilities produce a further work load of administrative and welfare work. The time available for the learning of new skills in such a situation is obviously limited despite the existence of two ancillary staff who spend a proportion of their time setting up equipment and recording programmes. Even experienced teachers with the knowledge, skill and confidence to design work programmes for specific classroom situations will find themselves deprived of the other necessary ingredient - time - and will find it easier to take out a set of text books.

In may own school staff use a variety of filmed and video taped material: recordings of schools programmes are supplemented by films, plays, documentaries and other material taken directly from normal commercial and B.B.C. television programmes. Yet equal benefit can come from much simpler devices: the value of low cost technology should not be underestimated.

I have already mentioned pupil motivation as one of the constraints existing for the classroom teacher: I do not think I am giving away any secrets if I say that Britain has an unemployment problem. Regional figures vary from over 19% in Northern Ireland to just under 10% in London and the relatively prosperous South-East. Youth unemployment is much higher than this: current estimates of youth unemployment in my own region, the South West, put it at 35% and this does not take account of a high proportion of young people who are in Government funded jobs - the Youth Opportunity Schemes - rather than in what the young people themselves call "real jobs". In addition planned cutbacks in higher education and university places will result in the frustration of able and articulate young people. Motivation is thus an identifiably worsening problem: I am not suggesting that the only motive for school work is the hope of a good job or career - but if all such hopes are remote some effect on schools in inevitable.

To illustrate one kind of strategy to motivate pupils I have brought with me several individual pages from a class magazine produced by a group of 13 year old pupils, the fourth set in a year group of seven sets streamed by ability: the classification used would put them at or slightly below average ability.

In designing the project I tried, unscientifically, to make some assessment of individual and group needs: I must admit that this was based largely on intuition.

The magazine cover - the most important page - was produced by the attention seeker in the class whose talent for drawing was equalled by his talent for disruption. The cover, lovingly drawn, displays I think not only the title but a great deal of repressed energy.

The best story in the magazine is called "the Bad-tempered Princess". It was written as a story for young children by a girl who was herself something of a bad-tempered princess: she had lost her temper in certain classes to a disastrous extent: though assessed as of average ability she produced a story which I believe to be equal in quality to many published childrens stories.

Again a small quiet boy who was always extremely anxious about written work spent hours of patient work with five different coloured duplicating sheets to produce a multicoloured illustration to his science fiction story - he achieved great precision and great success.

There were, of course, a lot of mistakes - but less than usual. You take great care with your work when you see forty or fifty duplicated copies emerging. Further explanation would be superfluous but I would like to add that in 55 minutes that class of 24 pupils checked and collated over 2000 duplicated sheets: what I had feared would be chaos proved to be a lesson in self-organisation and co-operation.

From another school in my area I have an anthology of creative writing. Produced by a "Writers Group" of 16-18 year old pupils it is much more sophisitcated in production method, content and presentation than the duplicated magazine. Entirely produced and designed by pupils it is an attractive and permanent record of creative effort: what the two magazines have in common is their demonstration of the way in which technical aids can give concrete form to the creative impulse.

I know that many people at this conference are aware of the work done by Teachers Centres and Learning Resources Centres in England. As part of a continuing programme of In-service Training I was able to attend a three day

Resources Workshop at the Learning Resources Centre in my own county. Teachers from all parts of the county were involved in the consideration of existing materials for the teaching of English and the production of materials based on our own teaching experience.

One group looking at alternative methods of teaching comprehension produced an easily reproduced work pack including a taped cassette interview intended to stimulate class discussion, drama and role play. A second group worked on photographic slide sequences co-ordinated with a prose/poetry sound track: the sound track materials used were creative writing produced by the teachers' own pupils. In one demonstration example the writing of one pupil provided a very moving film on alienation and loneliness merging the visual image and the spoken word. A third group of teachers using some very low cost technology learnt how to produce and bind books. Pupils' stories and poems were, by the end of three days, transformed into a small library of well designed volumes-another incentive to write well.

In some counties audio-visual programme packs are produced to deal with specific teaching situations or particular points of educational theory and organistaion: such programme packs can be borrowed by individual schools according to their own needs thus providing an infinitely flexible source of in-service training material.

In-service training at the University of Bath, the University nearest to my own school has included attempts to identify and solve particular learning problems within the classroom situation. One example can be seen in the work done with mixed ability science groups in the 11-14 age range. Sound tapes, photography and videotapes were used to record lessons as an aid to analysis and self analysis:the research team is also willing to record the lessons of any teacher anxious to re-examine his or her own effectiveness.

Close links exist between the University and the Bath and West Educational Research group whose publication "A Dialectical Approach to Inservice Training" contains many comments on the doubtful validity of much of the content of teacher training courses. It has certainly been clear that in England and, no doubt, in other countries also many young teachers feel that a great deal of their professional training has been of little practical use and bears little relationship to the problems facing them in the classroom. This criticism is extended by many practising teachers to a belief that much educational research is carried out not to any practical purpose but with the solitary aim of publication in learned journals to be read by other researchers.

Such comments lead to proposals for higher degrees based on problem solving and practical classroom experience: such work must inevitably depend on a high level of technical competence to record classroom situations. If we are to concern ourselves with a continuous assessment of the validity of our working materials that same concern must be applied to the validity of our teaching methods.

I am well aware that I have tried to cover too much too quickly: nevertheless I hope that I have been able to offer a partial view of the effects and implications of educational technology in the day-to-day working experience of one classroom teacher and I hope that my final comment will not be seen as irrelevant or irreverent. Several days ago I was involved in a profound discussion on the quality of the coffee served in Canadian hotels. Its appalling quality, we finally decided, was caused by an over-reliance on sophisticated machines and insufficient attention to the quality and quantity of the coffee beans. The analogy is an obvious one - the most sophisticated educational hardware is of little use unless equal attention has been paid to the quality of the soft ware: I would suggest that that quality can come only from the direct, active, continued involvement of practising teachers in the production and assessment of teaching materials.

Appendix 11.

Róbert Kozma

SOME QUESTIONS ON THE UTLIZATION OF AV TECHNIQUE AND THE DEVELOPMENT OF EDUCATIONAL TECHNOLOGY IN TEACHER TRAINING

Since the large-scale and organised introduction of audiovisual technique, more precisely of audio visual technical aids, into teacher training about 10-12 years ago numerous technical, organizational, economic, methodological and I could go on saying what problems have had to be solved. This conference gives a good example of the results that the Szombathely Teacher Training College, in particular and the country in general has achieved in establishing the closed circuit television system, its proper technical running, and its use in the practical training of teachers.

AV equipment have several functions in teacher training; they can be used at different levels with different objectives. One of the main functions of AV aids that also coincides with their role in primary and secondary education is being the subject, i.e. means of education when they help increase the level of educational work enrich its content and enable us to raise its efficiency.

Another function of AV equipment appears when students are acquainted with the handling, utilization of these within the frame of a study. In this function AV equipment is the object of education.

The third and highest level function from the aspect of practical training is when the student-teachers use, utilize AV equipment in the course of teaching practice.

Within these three functions there are different aspects in the utilization of equipment and owing to these different problems arise.

Let us examine first that function when the AV aid is the means, tool of education. In this case the emphasis is not on the apparatus but on the information that it transmits. Naturally the equipment is not secondary in the sense of being unimportant, because well working apparatus, machines must serve the designed audio, visual, or combined information. The main question here is the media that is professionally properly, didactically, pedagogically and psychologically excellently edited and is technically of a good standard. In order to be able to use the available /not cheap/ equipment successfully in teacher training it is necessary to prepare the chosen part of teaching matter in the form of AV media, It is equally important that the instructors have knowledge of the methodology of their utilization, not to speak of handling them. Instructors had to and have to be prepared for this task. This preparation was started long ago with basic and specialized courses and is being carried on now with more and more success.

Media used in teacher training are at our disposal through different channels. The Educational Technology Centre of the Juhász Gyula Teacher Training College as a national production basis has prepared several thousands of media: transparencies, slides, tape/slide presentations, teaching machine programmes and has sent them free of charge to teacher training institutes. The Szombathely Teacher Training College distributes video programmes. After registration the media received by the institutes go to the resource centre and on to the departments using them. If there is a technical methodological guide to media - like in the case of video programmes - then their utilization is more or less solved. Naturally media designers can make best use of them because in the course of educational technology planning they arrived at the solution setting out from /individual and common/ problems.

So media found most suitable by them are selected taking into account teaching objectives. In many cases utilization of the media received is problematic because of the lack of a guide. Besides this there is another difficulty, a certain amount of resistance on the side of the users must be overcome. Colleagues have to be persuaded thet this is not an attempt to make work uniform or to restrict their pedagogical liberty. Material prepared on the basis of the recommendation of the professional committee, with central approval and considerable intellectual, material and technical investment assist, give greater possibility to instructors to make better use of their time, develop their pedagogical individuality more effectively. Media that is professionally excellent and of a high technical standard speak for themselves.

Naturally the modes, methods of elaborating each topic depend on the personality, professional interest of the teacher as well as on his teaching practice. But they also depend on the students and objective circumstances, so they may vary to a great extent. Another teacher in another institute /or even in the same one/ teaches the same topic differently, as they are free to do this. This is why centrally produced media must be flexible regarding utilization. The parts a lecturer would like to use from a topic should be retractable from the whole, so that there is no need to "suffer" over a rigid programme using up much time with a great amount of redundant information .

Experience gained until now shows that this flexbility can be primarily assured in case of series of framed slides , series of OHP transparencies and video programmes /using the possibilities of the equipment/.

We have another problem, which is satisfying the demands of local "production". In many cases we find ideas that are very respectable from the aspect of the wish to modernize, but very amateurish from an educational technology aspect. For example for demonstrating a topic someone would like to use illustrations of a technical book and magazines and would like to have slides produced of these. The basic idea is good, to use material in education that can be found by students elsewhere. But they usually forget that figures /pictures, graphs, tables/ from books usually are not suitable to have a slide made of them directly. This is because the book is the tool of individual learning, which can be viewed by the reader from as close as he wants for as long as he wants simultaneously with the text. It is possible to examine minute details, complex relations, the usually small figures, signs, denominations. A figure in a book suits the "genre of the book" /we hope that this is always so in the case of textbooks/; slide and transparency figures must correspond to the rules and norms of slide and transparency design. It is not rare that colleagues have to be separately convinced of this. If there is no other way then with confrontation through an example, which usually has a convincing effect. Solution to the problem in cases like this comes from the cooperative activity of the teacher, the educational technologist, the graphic artist and the photo-technician.

Among the group of tasks called "SERVICE" one of the basic ones of AV technical bases in institutions is local "PRODUCTION".

Now we will examine the function of AV equipment as an object of education in teacher training. Within the frame of the subject "Educational Technology" student-teachers receive training in handling and using AV equipment, designing and producing different types of media. The content of audiovisual training evolved during the past 12 years. The development of social expectations, technology and the theory and practice of educational technology; the clearer definition of this interdisciplinary field, exploring its relation to other sciences, like pedagogy, psychology, information theory, control theory and systems approach; all these effected questions of content and methods.

Audiovisual training was started by teaching how to "handle equipment". This required technical knowledge in the first place. When the demand for training in equipment handling arose there was also a need for some knowledge of psychology and didactics.

This was followed by demand for designing and producing different types of media. In this way we came in close contact with the subject pedagogies, learning-psychology. Deeper knowledge of psychology and didactics was also necessary. The design of audiovisual media, their production, preparation of guides for utilization can only be imagined within the planning of a complex teaching-learning process. Complex planning like this is needed for teaching packages. The topic of teaching packages is taught in teacher training within the frame of a special course as part of educational technology training. The tasks of this one year course were mainly formulated from the aspect of pedagogical utilization. Technical /handling/ knowledge is included only as a sort of precondition.

In the course of teaching AV technique the emphasis is on the object of education, on AV equipment. Information is carried by the apparatus itself this being either one for transmitting information or for registering information and producing media.

For performing this function naturally a set of equipment was needed that due to its technical standard could satisfy actual demands and at the same time could show perspectives for a few years or decades.

With the increase in the number of participants in training the load, rate of wear of equipment increased. This is why the internal maintenance activity of the institute had to be fortified. The limit of the development of this field is set not by the lack of specialists with sufficient experience as used to be the case but mainly by the difficulty in obtaining spare parts. It is essential that an improvement should take place in this field. But this is not just our problem. For example because of spare part problems the time needed for repairing a videorecorder in the service in Budapest sometimes exceeds 5 months. This must be changed fast!

Finally in this topic I would like to draw attention to the moral wear, amortization of AV equipment. Production companies come out with more modern audio and video equipment each year. Naturally not only the quality of service but prices are higher as well. Often perhaps the extent of their rise is not quite justified, but that is another question. Within the frame of unchanged institutional budgets the replacement of worn-out equipment and development-modernization is slowing down. I think that this will reach its lowest point after which we will be unable to solve training tasks. Obviously our demands in developing training should not be too far-reaching and should not get beyond the possibilities and demands of primary and secondary schools. Although one of our tasks is to increase the standard of utilization of AV technique in order to make teaching work more efficient in schools.

Audiovisual training of students can only be satisfactory if we have continuous and close contact with the departments, subject teachers, training schools, instructors. I have already spoken of the importance of contact with the Educational Science and Psychology Departments. This contact is necessary because of several reasons. We must know each other's professional activity in order to

- evade overlapping, but make best use of possibilities offered by the other field
- have sufficient student activity in terms of practical training. Their work relating to the design, production of media must meet professional, subject and educational demands. These results may also help the work of instructors in practical work at school;
- contribute to the educational technology aspect of our colleagues, work at other departments and in the training school and facilitate - as concrete experience - the development of teaching educational technology as a subject, from the point of view of both content and methodology.

If we manage to solve all this then we will arrive at a point where in the course of practice at training school our student-teachers will be able to successfully use AV equipment and the theoretical-practical knowledge they have attained. Handling equipment is or should be on an ability, skill level. This is only conceivable if there is a possibility to revive AV equipment knowledge learned earlier within methodological practice, or if there is a suitably equipped consulting cabinet where the trainees can produce in good quality media designed for their teaching.

I think that the problems outlined above were enough for indicating that the use of AV technique in teacher training is very complicated. It is connected with very many subject related, economic, theoretical-scientific, practical-organizing and personal questions and conditions and is a continuously developing, evolving, enlarging task. It has fundamental significance in the modernization of educational work, in increasing its quality and efficiency.

Appendix No. 12.

GYÖRGY APPEL

WAYS FOR UNIFICATION OF METHODS AND EDUCATIONAL TECHNOLOGY OF TEACHER TRAINING AND IN-SERVICE TRAINING WITH THE USE OF VIDEO TECHNIQUE AND COMPUTER SYSTEMS

The dissemination and utilization of modern educational technology equipment in Hungary started approximately fifteen years ago. In 1976/77 the Central People's Control Committee /KNEB/ conducted a survey on the utilization of educational technology equipment in institutions. The acquisition of equipment by institutions in Budapest was as follows /1968-77/:

year	total pieces	average per school
1968-69	3788	12
1972-73	6967	23
1974-75	9171	31
1976-77	15748	54

From the table we can see that in relation to 1969 the number of equipment increased five times. Furnishing schools with equipment in itself does not assure better efficiency.

Two extremes can be experienced among active teachers: one is announcing the almightiness of equipment, the other the extreme underrating of modern techniques.

In 1978 the Budapest Pedagogical Institute conducted a representative survey in the XIV. district of Budapest.

The result of this:

- 91 % of the teachers interviewed would like to use modern educational technology equipment according to the following ratio: out of the 91 % only 41% uses it as the rest of them cannot use it/11%/,are afraid of using it/14%/ or have some other reason /15%/. The fact that in the introductory period we did not pay enough attention to the preparation of teachers in this respect also played a part in the development of these views.

In order to solve this educational technology training was introduced in teacher training institutes.

For in-service teachers the county further training institutes organize courses in educational technology.

In both forms of training great attention is paid to the theoretical and practical aspects of handling equipment, production media and the methods of their systematic use.

In the past ten years most of the teachers in Budapest participated in some form of training in educational technology but according to our experience these did not attain the objectives in all respects; the efficiency of education did not increase to the desired extent.

Another reason for the insufficient increase of efficiency is that the relation of teacher training and in-service training institutions could be better coordinated. I would like to call the attention to one of the modes for this.

The possibilities of unification

Because of known economic and pedagogical necessities unification is justified by the following objective factors:

a/ More and more young teachers go to schools who have already learned educational technology in institutes of higher education.

b/ The variety of equipment used in schools has relatively stabilized.

c/ Teachers feel that further training relating to their subject is of primary importance.
Educational technology training should be directed at this.

d/ With the introduction of the 5 day week the time allowed for further training has decreased.

In view of all this unification can be expected in the following fields:

1. Coordination of topics

2. Cooperation in setting up identical systems of equipment
3. Organizing common further training with the departments
4. Exchange of media

Recommendations for their implementation

1. In order to coordinate topics it seems practical to broaden the circle of participants in the Interuniversity Educational Technology Committee. This means that the heads of further training institutes would be invited to discussions, like in the capital where this is regular practice. This is why the Budapest educational technology further training programme was changed so that there is separate training for art and science teachers.

2. In the course of teacher training instructors should only deal with equipment that can be found in schools. Information on the necessary equipment will be furnished by further training institutes. Specialists of institutes of higher education would help further training institutes in running more costly equipment /e.g. video/.

This could be based on the following mutual relation:

a/ use of different units /mixer, camera, whole studio, etc/
b/ help in setting up a studio, counselling, education

3. It seems practical to divide to a certain extent the further training in educational technology of natural science and liberal arts teachers. Methodological instructors of the suitable departments sould be of service here.

4. The most important field is the exchange of media. This can be justified by the fact that there is already a great amount of materials at further training institutes that has been designed at colleges. It must

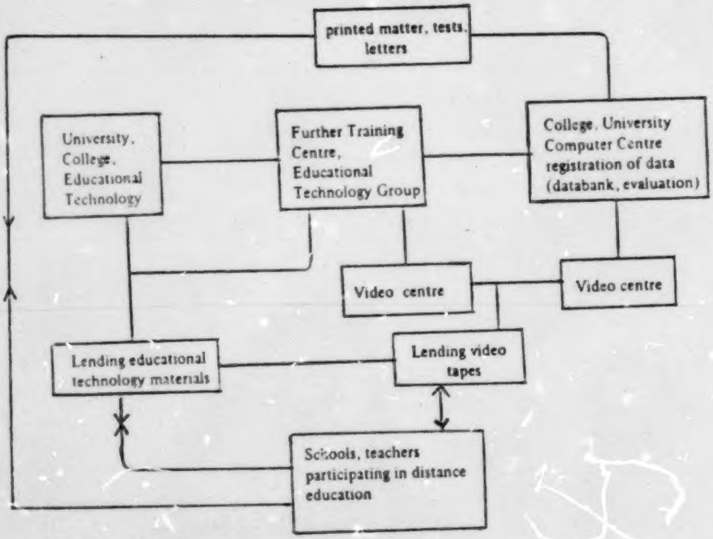
not be underestimated that financially the preparation of materials is the most expensive. Unification could be performed in the following:

- exchange of catalogues of media already produced
- specialists from both institutes in preparing media already designed
- distribution of ready materials in number of copies demanded.

All these unification factors can be best felt in case of video technique where there importance is underlined by the following:

- video equipment is one of the most costly types of apparatus
- educational technology institutes started using video later than universities. So institutes of higher education are in a better position regarding equipment and experience
- county teacher further training institutes received Sony /Umatic/ colour videorecorders and developed the video system from their own efforts.
- video technique in professional further training is indispensable,
- because of the shortening of further training time we must deal with the question of controlled self-instruction and distance education.

This is where the use of video and of computers in a broader sense meet, which is shown by the diagram below:


printed matter, tests, letters
University, College, Educational Technology
Further Training Centre, Educational Technology Group
College, University Computer Centre registration of data (databank, evaluation)
Video centre
Video centre
Lending educational technology materials
Lending video tapes
Schools, teachers participating in distance education

The establishment of this is urgent from the further training aspect. Therefore the unification between teacher training and further training institutes should come into force as soon as possible according to the following sequence:

1. Mapping up of video systems, computer technique of different institutions, acquaintance with them through mutual visits;
2. acquaintance with catalogues of video programmes produced in different institutions;
3. copying of material produced in one institute and usable in another;
4. joint design and production of video programmes;
5. examination of the possibility of using video and the computer in distance education and its experimental utilization.

Experience shows that further training institutes have good relations in places where there is some kind of institute of higher education. This may serve as a basis for widening further, economically and pedagogically well founded systematic relations.

Appendix No.13.

Ferenc Poór

ONE OF THE FORMS OF DEVELOPING PEDAGOGICAL ABILITIES USING VIDEO AT THE SZOMBATHELY TEACHER TRAINING COLLEGE

A teacher can only meet the demands of his profession if he has developed and solid abilities, not to speak of the obligations from the part of the society. In the course of teacher training the development of pedagogical abilities is carried on within the frame of educational science and psychology studies and practice. Experience shows that with traditional training only a basis can be given, "Reflective-reproductive" level meaning the lowest stage of ability development can only be met with more effective processes than these and with further college studies and teaching practice we can come close to a "Reflecting-creative" ability level. We looked for the process that responds to higher demands and assures a higher level of ability development.

In order to be precise a few words must be said about what we mean by ability and pedagogical ability.

Under ability we mean the timely level of preparedness, the totality of the characteristics of the individual that comply with the demands of the activity and assure the accomplishment of results in the course of action. In our opinion pedagogical abilities derive from this and are the totality of characteristics of the personality that comply with the demands of pedagogical work and assure the accomplishment of good results in educational work.

From among pedagogical abilities we have picked out those which are in our opinion the most important, these are the following:

- the ability to recognize
- the ability to observe
- the ability to transmit knowledge, that is teaching ability
- the ability to treat pupils properly, pedagogical delicacy
- pedagogical fantasy

- exactitude
- the ability to organize
- the ability to communicate.

In our opinion the ability to communicate is of special importance among these as it means the manifestation of the other abilities.

Abilities are formed in the course of activity and are at the same time the results of these. So video process had to be found or developed for the intensive development of pedagogical abilities that based on the knowledge of students assured much practice and fitted into the whole process. We reviewed microteaching, studied the teacher behaviour training carried on at Klagenfurt University and found that neither of them can be completely adopted for Hungarian teacher training. We need to use a process that does not develop separate abilities one by one, but assures a relatively wide scale development of abilities in forming the whole personality. We started using a global training process that is based on practicing larger units of activity and adapts certain elements from both "classical" microteaching and the Klagenfurt behaviour training.

Briefly the sequence of training is based on the following units. First we strive at obtaining self-knowledge by solving smaller tasks and with videoreacording of these. Through video ability development practice everyone has the occasion to see himself "from the outside" on the screen and to receive a real picture of themselves through the multiple practice-feedback process. With this we essentially exploit the basis of pedagogical abilities.

In the next stage students have pedagogical situation practice, first modelling shorter teaching activities within the student group and later on with the help of pupils. Evaluation of the most positive and negative elements of activity is carried on with the help of a 7 grade scale. The average is the 0 line and our opinion is recorded considering positive and negative deviation in relation to this.

Development in a certain period can be evaluated by comparing the evaluation of teaching. All teaching periods are evaluated, analysed among others with the help of evaluation sheets prepared for this purpose, /see appendix 1/ and these are compared to previous ones and graphically projected /see appendix 2/.

In the third stage of practice there are shortened - 15 minute lessons where students teach smaller groups of pupils. All these periods must contain the whole process. These periods are evaluated, analysed on the basis of video recordings, then every student teaches another period in another topic taking into consideration the proposed corrections. A comparative evaluation is made using two or more recordings and further tasks are discussed individually.

Teaching practice means the end of the process - 4th semester in case of teachers for the lower grades and 6th semester for those who will teach in the higher grades - videorecordings of these are similarly evaluated, analysed and compared regarding each student's development and also of students solving identical tasks but not receiving video training. On the basis of evaluation students receive guidance relating to the further phase of training.

Every member of the group actively participates in video periods thus all students are active on all recordings so practice time is greatly extended compared to traditional training /about three times/.

Preliminary small group experiments show that video ability development based on the whole process is effective and tests regarding the preservation level of evolved and developed abilities proved that they are lasting. Several programme variations of video ability development were elaborated on the basis of these and are used at Szombathely Teacher Training College.

A programme was elaborated for lower grade teachers comprising two semesters and one semester for the pedagogical practice subject. There are three programmes for higher level teachers, one lasts 5 semesters, another lasts 3 semesters in the 3rd-5th semesters and the third one tries to solve ability development in the 4 th and 5 th semesters. We are working on an experimental programme in the 4th semester.

These topics include the stages mentioned earlier with shorter or longer theory depending on their duration and this is followed by a self-knowledge stage of sufficient duration. These are followed by pedagogical situation practice, exercises and teaching practice and the stages of these are shorter or longer agåin depending on the duration of the course. Today we feel that longer ability development practice is advantageous as there is more time for each type of pedagogical exercise, which is the most important phase of video exercises, but we still do not know whether the 3 semester training is more optimal.

These experimental programmes are used at the Szombathely Teacher Training College and have brought certain measurable results.

The video process has been used in the one semester pedagogical training prescribed by the curriculum in two student groups. After certain theoretical basis had been given the phases of ability development were tried, i.e. the development of self-knowledge, pedagogical exercises of greater demands were included.

Table 1.

EVALUATION SHEET

	-3	-2	-1	0	+1	+2	+3	
1. Tense, jerky, uncertain behaviour	○	○	○	○	○	○	○	Tension-free, light, certain behaviour
2. Start of period is not activated	○	○	○	○	○	○	○	Start of period activated
3. Not sufficient continuous contact	○	○	○	○	○	○	○	Has continuous contact with pupils
4. Blurred questions not helping to think, previous knowledge not revied	○	○	○	○	○	○	○	Specific, clear questions, these help revive previous knowledge
5. Interest, understanding of pupils not assured	○	○	○	○	○	○	○	Interest, understanding of pupils assured (intellectual identification)
6. Did not help emotional identification and conviction	○	○	○	○	○	○	○	Helped emotional indentification presentation is convincing
7. Role of leader of period prevailed	○	○	○	○	○	○	○	Ratio of leader and pupils activity was good
8. Appearance, behaviour did not help active participation	○	○	○	○	○	○	○	Appearance, behaviour helped active participation
9. Unfriendly, cool manner	○	○	○	○	○	○	○	Friendly, direct manner
10. Confused, un-Hungarian speech	○	○	○	○	○	○	○	Clear, Hungarian speech

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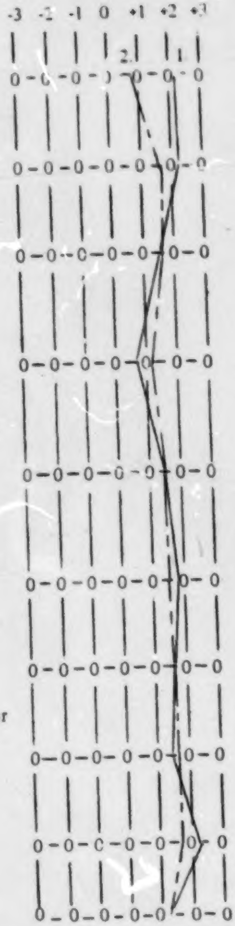
Table 2.

EVALUATION SHEET

Comparative evaluation



1. Tense, jerky, uncertain behaviour	Tension-free, light, certain behaviour
2. Start of period is not activated	Start of period activated
3. Not sufficient continuous contact	Has continuous contact with pupils
4. Blurred questions not helping to think, previous knowledge not revied	Specific, clear questions, these help revive previous knowledge
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7. Role of leader of period prevailed	Ratio of leader and pupils activity was good
8. Appearance, behaviour did not help active participation	Appearance, behaviour helped active participation
9. Unfriendly, cool manner	Friendly, direct manner
10. Confused, un-Hungarian speech	Clear, Hungarian speech

1. = period in own group } evaluation
2. = period with pupils

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Some video pedagogical exercises were conducted with student-teachers in connection with a didactic seminar. The objective here was to solidify their self-knowledge by the time of their first teaching practice and develop their pedagogical ability to a reflective-reproductive level. Theoretical knowledge was supplemented by communication theory, there were exercises for obtaining real self-knowledge and their abilities were developed with the help of pedagogical situation exercises. The exercises always contained whole processes and this was supplemented by multiple feedbacks and evaluation. As a result of this all students developed measurably and with 50% of them there was extreme development compared to the starting out level /see appendix 3,4/.

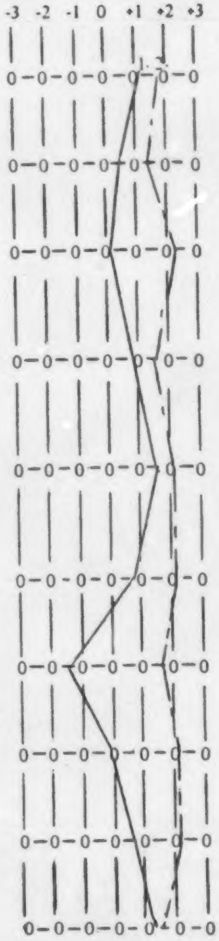
Teacher trainees were asked their opinion about video periods /without names/. 96-98% of students asked to carry on with video periods in an organized form. With the help of evaluation the students saw for themselves that they had got a more realistic picture of themselves, their practical pedagogical grounding had developed as well as their appearance, performance before the community. Further experiments are necessary for determining the optimum content and form of video pedagogical exercises, exploiting its system of effect, but the first results are inspiring for both the students and those working in the experiment.

Table 3.

EVALUATION SHEET

Comparative evaluation

1. Tense, jerky, uncertain behaviour	Tension-free, light, certain behaviour
2. Start of period is not activated	Start of period activated
3. Not sufficient continuous contact	Has continuous contact with pupils
4. Blurred questions not helping to think, previous knowledge not revied	Specific, clear questions, these help revive previous knowledge
5. Interest, understanding of pupils not assured	Interest, understanding of pupils assured (intellectual identification)
6. Did not help emotional identification and conviction	Helped emotional indentification presentation is convincing
7. Role of leader of period prevailed	Ratio of leader and pupils activity was good
8. Appearance, behaviour did not help active participation	Appearance, behaviour helped active participation
9. Unfriendly, cool manner	Friendly, direct manner
10. Confused, un-Hungarian speech	Clear, Hungarian speech



1. = period in own group
2. = period with pupils } evaluation

BEST COPY AVAILABLE

EVALUATION SHEET

	Comparative evaluation
1. Tense, jerky, uncertain behaviour	Tension-free, light, certain behaviour
2. Start of period is not activated	Start of period activated
3. Not sufficient continuous contact	Has continuous contact with pupils
4. Blurred questions not helping to think, previous knowledge not revied	Specific, clear questions, these help revive previous knowledge
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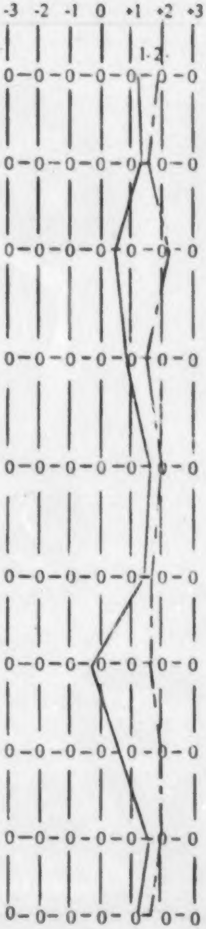

1. = period in own group } evaluation
2. = period with pupils

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Appendix No.14.

Miklós Magyar

A BASIC FACTOR OF VOCATIONAL TRAINING IS THE INSTHUCTOR-EXPERIMENTAL PROGRAMME FOR DEVELOPING PEDAGOGICAL ABILITIES WITH VIDEO

Honourable Chairman, Members of the Conference!

In my presentation allow me to deal with a problem that has been dealt with by others, the development of teachers' abilities. The topic of the conference is "Technology in the service of Teacher Training" but I think it would be worthwhile to deal with this problem that also arises in the further training of teachers.

In the Hungarian school system there is a special strata of teachers, so-called technical instructors. They are the teachers who deal with the practical training of pupils in vocational schools /skilled-workers to be/. The pedagogical training of these specialists was missing from our teacher training for a long time. At the moment their training is primarily theoretical-pedagogical, so their elements of activity for effectively practicing the teaching trade, the development of teaching abilities, their correction is only occasional, partial.

Mr Poór acquainted you with the basic training the objective of which is the development of pedagogical abilities of student teachers using videorecorders and which was demonstrated in short at the training school. Our institute deals with a specialization of this research, with the development of pedagogical abilities of technical instructors by video. In case of active teachers the county teacher further training institutes do not only have the task of further training but also that of training. Our institute has been dealing with the pedagogical training of active technical instructors for four years. Within the traditional further training structure the practical formation, development, correction of pedagogical abilities was not solved in spite of well grounded theoretical pedagogical training.

After recognising this we joined the pedagogical research coordinated by the National Centre for Educational Technology trying to find an answer to the problems of adult educational technology education. Since September 1980 a special further training experiment /research/ is being carried on in the institute the topic of which is the development of pedagogical abilities of technical instructors who are not teachers by profession but who carry on teaching activity. The objective of the further training experiment is practical modelling, simulation based on theoretical foundations and concrete activity-based analysis correction /or reinforcement/, acquaintance with activity components defining the professional knowledge of teachers in the course of /practical-production-pedagogical/ work.

In the course of the process used simiarly to the basic research global training, development method combinations are dominant. This mode of processing is needed to be lifelike. At a higher level of training a mixed system combining the advantages of the global and analysing method is also utilized. The use of the videorecorder has received a very significant part in our process, as its use permits faster and total development /correction/ of different types of abilities taking into consideration the whole personality. It is the means of acquaintance with reality, the manysided personality, of the development and deepening of a more objective self-knowledge /as the results of the first part of the experiment have shown/ that cannot be substituted with anything else.

The further training mode

The technical instructor is a basic factor of practical education and through this of the technical education /in all respects/ of the generation of skilled workers growing up. Regardless of their basic training, and profession we have drawn their attention to the development of pedagogical abilities, to everything that can be used to influnce their work of transmitting professional knowledge correctly, to facilitate communication and to give an occasion to pupils to see a suitable "model" in the technical instructor.

/The technical instructor as a teacher leading a professional group is actually a kind of model giving guidance to pupils from two /coexisting/ aspects. One of these is a model as a skilled worker, the other is the incarnation of the workplace, the head of the workshop. Together with these two levels the technical instructor is also present in the form of an individual./ Educational work demands complex activity units the setting up of which can be assured by practicing the elements of the "pedagogical" skill /complex abilities/. Similarly to the basic research the abilities are developed in a complex form, examining the whole of the activity. The main points of the realization of the programme are as follows:

- on the basis of previous knowledge the trainee has prepared for the practical period, but counts on the evaluation of group members and of the leader
- members of the group observe their colleague according to given aspects and evaluate him individually, the video-recording is discussed,
- the trainee holding the period evaluates himself, this is compared with the opinion of the group /on evaluation sheets/ and discussed,
- the recording is replayed and discussed,
- evaluation of group leader/s/ comparison with previous practice, setting new task in the light of exploited and discussed problems,
- elaboration of supplementary theoretical knowledge with the help of technical literature, model films, other media.

When organizing periods for the sake of a defined goal a programme plan is elaborated on the basis of the principle of the development of basic features. In the course of this the proper ratio between theory and practice was assured, as well as the presentation and elaboration of necessary models, the concrete activity of trainees, the objectivity of evaluation and the continuity of team-work.

During the course which has a total duration of 72 hours in periods of 6 hours on the average 6 technical instructors presented 3x10 minute videorecordings and could do self-evaluation which was followed by approximately one hour evaluating discussion and professional-pedagogical summary.

During the course in the knowledge of the exercises the leader of the experiment gave individual instructions regarding the contents of each videorecording, thus trying to influence the creative work of trainees primarily from the pedagogical side.

Evaluation of pedagogical work was carried on with the "Semantic Differential Rating Scale" similar to the Tuchman type and that was used in the basic research by Dr. Poór, but somewhat rearranged for the specifications of our research. This was done in such a way that everyone defined and recorded the value of achievement on the evaluation scale according to the behaviour-activity-group /see appendix 1/.

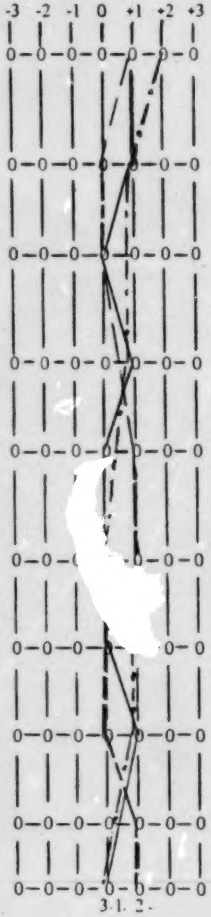
The comparison /graphic/ of evaluation of each trainee shows that the level of ability which was rather extreme at first gradually becomes more balanced /appendix 2/. In this balancing process the following factors play an important part:

- videorecordings with which a concrete "self-portrait" could be put in front of the trainee instead of the total effects and very subjective opinion received in case of CCTV,

- evaluation sheets that helped develop the consciousness of opinion and self-knowledge. At the evaluation of the comparative analysis there was occasion to demonstrate the development of the group, for the concrete observation of the change in self-evaluation of individual technical instructors.

Table 1.

EVALUATION OF CERTAIN PROFESSIONS
(SELF-, COMMUNITY-, TECHNICAL LEADER'S EVALUATION OF A TRAINEE) EVALUATION SHEET (KAPOSVÁR)



1. Start of period is not activated	Start of period is activated
2. Blurred questions not helping to think, previous knowledge not revived	Specific, clear questions, these help revive previous knowledge
3. Reactions did not reinforce knowledge of pupils	Helped reinforce knowledge of pupils with reactions
4. Did not keep sufficient continuous contact with pupils	Kept sufficient continuous contact with pupils
5. Did not make enough use of activising possibilities	Made good use of activising possibilities
5. Did not help in learning sequences (technological process)	Helped in learning sequences (technological process)
7. Role of leader of period prevailed	Ratio of activity of leader and pupils good
8. Did not use non-verbal communication elements properly	Used non-verbal communication elements well
9. Appearance, behaviour did not help active participation	Appearance, behaviour helped active participation
10. Confused, un-Hungarian speech	Clear, Hungarian speech

1. = common eval.
2. = own eval.
3. = technical leader's eval.

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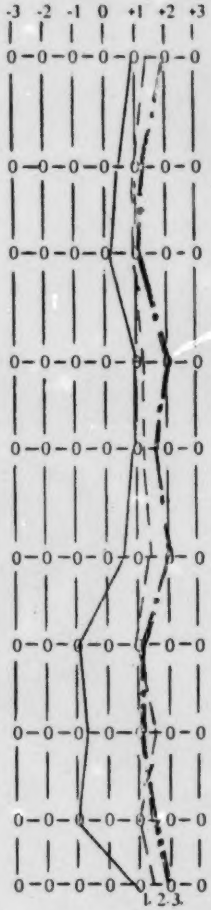
Table 2.

COMPARATIVE EVALUATION OF ACHIEVEMENT (EXTREME VALUES OF ACHIEVEMENT OF A TRAINEE) EVALUATION SHEET (KAPOSVÁR)



1. Start of period is not activated	Start of period is activated
2. Blurred questions not helping to think, previous knowledge not revived	Specific, clear questions, these help revive previous knowledge
3. Reactions did not reinforce knowledge of pupils	Helped reinforce knowledge of pupils with reactions
4. Did not keep sufficient continuous contact with pupils	Kept sufficient continuous contact with pupils
5. Did not make enough use of activising possibilities	Made good use of activising possibilities
5. Did not help in learning sequences (technological process)	Helped in learning sequences (technological process)
7. Role of leader of period prevailed	Ratio of activity of leader and pupils good
8. Did not use non-verbal communication elements properly	Used non-verbal communication elements well
9. Appearance, behaviour did not help active participation	Appearance, behaviour helped active participation
10. Confused, un-Hungarian speech	Clear, Hungarian speech

1. = 1st recording
2. = 2nd recording
3. = 3rd recording

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Mr. Chairman, Honourable Participants of the Conference!

When closing down the first phase /1980-81 academic year/ of the experiment, on the basis of analysis using the "evaluation sheets" and experience gained at functional further training we see our research theory justified, that it is necessary and possible to develop pedagogical abilities using video in case of teachers who are skilled workers regarding their profession, /technician, etc/ but in their everyday work they are basically teachers teaching a profession.

Finally I would like to thank Dr Ferenc Poór, scientific collaborator of the National Centre for Educational Technology for the support he gave our institute in research and the organisers for letting me participate in the work of the conference.

Thank you for your attention!

References

Dr. Ferenc Poór-Miklós Magyar: Experimental further training programme for the development of pedagogical abilities of technical instructors with the help of videorecorder at the Somogy County Pedagogical Institute - Manuscript - Veszprém, OOK Resource Centre, 1980.23 p.

Miklós Magyar: "The technical instructor as the basic factor of vocational training" /Report of experience gained in research on functional further training/ Kaposvár, Iskolai Szemle, 1981/3. 31-39 p.

Appendix No. 15.

Lajos Szabados

SOME POSSIBILITIES OF USING THE VIDEORECORDER IN TEACHING DIDACTICS

Primary school teacher training has been going on in our college in Eger since 1949. The modernization of educational work speeded up as a result of the 1972 educational policy regulation and the state measures taken after this. The effectiveness of education of the increased number of fulltime students is mainly assured by the development of educational methods. One of the important elements of this modernizing process is the introduction of video technique into the educational, training process.

In the past 5 years significant development can be experienced in this field. A closed circuit television system has been working in one of our training schools for years /this school is a base school of School Television/, and is being introduced into the other training school now. Besides The efforts of training schools it is worthwhile mentioning the activity of college departments relating to video technique. This is proven by the fact that 15 departments have prepared videorecordings with the help of the Educational Technology Group. The 100 video tapes produced can be well used at lectures, seminars and within the frame of special courses. 75% of these recordings are of a pedagogical-psychological, subject-pedagogical character.

The Department for Educational Science also played an important role in this work. Recordings on psychology, logic, educational theory and didactis increased the efficiency of our work, made the preparation of students for subject-pedagogy and practical educational wprk more conscious and organized. This creativity is greatly helped by college administration by the fact that they evaluate the recordings annually and award the authors both morally and financially.

Within the Department of Educational Science video technique was first used in teaching didactics. We are now in the fifth year when the use of videorecordings form an integral part of the training process. Since the 1977/78 school year we conduct this work systematically, consciously and with an ever broadening tendency.

We planned to use videorecordings in 3 phases:

- in the first /at lectures/ we made the cognitive activity /concept, understanding, remembering, thinking/ of the students more varied, concrete, "easier to get at" when analysing the structure of the educational process.
- in the second /at seminars/ this cognitive activity was extended to the analisis of educational methods and workforms.
- we plan to use the videorecorder in the third phase, in student activity /recording, replaying and analysis of pedagogical activities/.

The consciousness defined beside the systematic and ever broadening tendency includes the following:

- determination /thinking and having students think: why, with what objective?/
- methodological consciousness /from what position?/
  /how, with what aids?/

With all these we assure creative utilization and the recognition of this.

Since the 1977/78 academic year we have been using taped lesson sections to demonstrate the structure of the educational process. The lecture material is based on the theoretical material of prof. Sándor Nagy. So we demonstrate two complex phases /acquisition of knowledge and its utilization/ of the macrostructure of the educational process as microstructural elements.

We emphasise the following microstructural elements:

Motivation. On the basis of experience gained during lessons we have concluded that we are lagging behind with teaching practice compared to theory, because today the utilization of direct objectives is still dominant. In order to advance in teaching practice we have prepared recordings for different types of motivation:

- problematics /mathematics - sets/
- having the necessity seen for making up lacking knowledge /physics - alternate motion/
- raising questions /geography - industry in the GDR/
- apprehension of social and individual usefulness /mathematics - measuring length - units of length/
- direct objectives - /nature study - wheat/

Presenting facts to students, having students gather them.

This microstructural element is emphasized because many times during lessons facts are conveyed that are already known by the students. A good example is the preparation of subject-matter for the geography lesson on the "blond" Tisza river. On this lesson subject matter is "gathered" by students under the direction of the teacher. This exploitation of facts is well depicted in the recording.

Differentiated analysing activity related to facts /analysis and synthesis/, inductive and deductive verification, direct and indirect conclusion, necessary and possible abstraction, generalization are primarily demonstrated to show that these should be done with pupils.
Within the complex phase of the acquisition of knowledge certain fixing, organizing and control activity is also demonstrated.

The complex phase of utilization is processed with similar microstructural analysis.

Besides the processing of the educational process structure at lectures starting from the 1980/81 academic year videorecordings are used at seminars for processing educational methods and work-forms. Besides demonstrating certain methods and workforms we use the recordings to help show that in present practice the ratio of method groups and workforms is not correct. According to our studies there are more methods based on educational work /continuous oral information, lecture, explanation, narration and demonstration/ at the same time methods based on the work of the student and teacher /discussion, repetition, practice, control and evaluation/ are used less, just as those based on the individual work of students are /observation,experiment, laboratory work, individual work with textbooks, books, workbooks, programmes/. This work is conducted by students at seminars as lesson analysis.

From this year with the 3rd phase mentioned we are joining the experimental programme of Dr Poór Ferenc. From November we will be conducting work on the basis of the experimental programme he elaborated , but in a special form. This means that in this semester we will start the experiment with 3 groups /at psychology seminars for the 1st year, at didactics seminars for the 2nd year and in subject pedagogy for the 3rd year with one group each year/.

For the first and second year groups the experiment will be carried on in the next semester and even in the years to come. On the basis of this we have compiled one, three and five semester programmes. In this way we would like to study what effect different duration and different pedagogical activity programme recordings have on students' teaching practice.

The video technique programme in the 3rd phase will be introduced for developing students' abilities /primarily pedagogical abilities/.

Appendix No. 16.

Klaus Kroll:

THE UTILIZATION OF VIDEORECORDINGS IN THE GDR IN HIGHER EDUCATION AND ESPECIALLY IN TEACHER TRAINING

The present conference is devoted to the use of video technique in teacher training. In our presentations we must not forget that the teacher must work at technical, medical, art, etc. colleges and universities. Video has also entered these educational institutions as educational and research equipment. Its introduction and effective utilization has depended and depends on the extent to which the college educator can develop the ability and aptitude of pedagogical-methodological utilization.

In the GDR there is compulsory training and further training in college pedagogy and methodology for professors, lecturers and the new generation. Training topics include the problems of preparing and using television programmes. Television is used in this training and further training for recording pedagogical activity and submitting it to common debate. The department of the Karl Marx University in Leipzig has an important role in this field. Experience gained in this field was presented among others at the 5th TV Seminar of the GDR/Soviet Union [1/]. We would like to mention some of these in a thesis-like manner:

1. College-pedagogical-methodological knowledge is a self-developed educational process and develops as a unity of the acquaintance of pedagogical-theoretical regularity. This comprehension, this unity has been attained especially with the help of television. The recorded college pedagogical event has become the deductive and inductive basis of acquaintance with theoretical rules.

2. The result of the utilization of television with college educators also depends on the precise setting of objectives in training and further training and on the common preparation of the event to be recorded with the participation of specialists and college methodological professionals.

3. The preparation of the "Model educational event" did not prove to be satisfactory. Personalized educational events chosen from the aspect of reflecting certain theoretical rules with great probability were much more suitable for debate and convincing.

4. The anxiety that an aptitude situation has to be demonstrated before the camera and the visiting colleagues can be overcome by preparing test-recordings with all participants. After repetition an effect of custom can be observed quite rapidly.

5. Not a single recording is presented before the instructor has analysed his own behaviour and has put the recording to common debate. Self analysis has a great effect on the development of pedagogical-methodological attitude and activity components. Mainly dealing with the theoretical pedagogical questions of comporehension and ability has increased.

6. Mutual visiting of educational events and the analysis of simultaneously prepared recording has proved to be most advantageous. Editing and emphasizing has been done. The presentation of whole educational events has not proved to be satisfactory.

7. In training and further training in college methodology the use of educational television must not have the objective of "standardizing" educational behaviour. The consciousness of individual personality characteristics should be emphasized and further developed to the advantage of teaching results.

So much in short about the utilization of television in college pedagogical training and further training.

Two more comments to the previous papers!

1. The competent ministries of the GDR have decided to fit teacher training institutions with video technique. But all institutions must elaborate a concept adapted to their own

conditions for the utilization of pedagogical methodology and must present this to a special committee /e.g. the Educational TV workgroup of the Ministry for Colleges and vocational Schools/. So "technical games" with television are excluded in the same way as non-economical utilization is.

2. State television has a many-sided supporting and supplementing programme for the primary schools in the GDR. The Central Institute for School Radio and Television in Potsdam is responsible for the scientific and educational methodology of these.

On the basis of accompanying scientific surveys regarding the effectiveness of these programmes the institution conducts propaganda activity for active teacher and teachers-to-be. There is a concept for the standard of television programmes for colleges and universities. It is expected that these will be prepared and put into state television programmes in the GDR.

Reference:

/1/ Berger, A. -Gebler, J.: The contribution of educational television to the college methodological qualification of instructors at the Karl Marx University.
Berlin: IFBT. Series: Information No. 13/1980.

Appendix No. 17.

Alexander Panajotov:

TECHNOLOGY IN SERVICE TO THE TRAINING OF FUTURE TEACHERS

The two questions to which I would like to draw your attention are the following:

1. 1st Question, - Some statements and appraisals concerning the use of technology or technical means of education in the training of future teachers /the examples are concerned with training of teachers of Biology/.

2. 2nd Question, - Some reflections about the development of the same problem.

1.1. From July 1979 up to this day in PRB were held: the Plenum of the CC of the BCP about the development of the educational cause, the 1st Congress of the Teachers, the XII. Congress of the BCP. The published directives and the normative documents of the Ministry of Public Education resulting from them indicated the achieved success in the sphere of education, as well as the tendences of its next development, that will bring it in accordance with the long-range necessities of our social progress. One of the problems for discussion is the further intensification and optimization of the educational process in higher educational institutions. It is inseparably linked with the effective usage of the technology and the technical means for education.

1.2. About 170 000 of the working people in our country are teachers. They are trained in non-pedagogical or in pedagogical high schools with period of education from 3 to 5 years /accordingly teachers up to the VIIIth class and teacher from the Vth to the XIth class. Doubtless the training of future teachers is a function of the training of the teachers who educate them as well. In our country the training and the retraining of high school teachers accomplished systematically, where some of the plans keep the specificness of the particular school. Apart from that every two years in the University of Plovdiv a seminar is held with the participation of representatives of the rest of the high schools on the problems of education in higher educational institutions. Undoubtedly discussions are held on reports concerning applying technical means of education in educating students of different branches of science, demonstrations organized for the aim are observed, etc.

1.3. Technology, films and video tape recordings, which are used /intended/ may be grouped in two trends.

1.3.1. Technology, films and video tape recordings connected with a given scientific field or branch of science, for example Biology. The microscopes with different possibilities are the typical instruments, and in many of the created scientific films and video tape recordings could be named - Breathing and Respiratory Organs, Biological Oxidation, Blood, Fecundation, etc. The assimilation of instrument technology and analysis of films and video tape recordings of that kind is accomplished in the school periods for practice in the corresponding branch of the biological science. The integration links of the high schools with BAS Institute give wide additional possibilities for the usage of unique contemporary technology. Particularly valuable are the films and the videotape recordings that illustrate processes, whose practical observation by students training for teachers is practically impossible. But what is well known such technology, films and video tape recordings satisfy the aims of education on a given scientific branch, respectively part of the aims of the special, for example biological, chemical, etc. training.

1.3.2. Technology, films and video tape recordings connected with the professional training of future teachers - is the centre of the problem. Doubtless our attention should be directed at the generally accepted classification of the main types of activities of future teachers and to appraise the way technology helps and makes more effective the education in higher educational institutions on these main activities. Though conditionally two subgroups could be outlined.

1.3.2.1. The technical means for education which are connected with a given branch of science, on the one hand, but with lower indices /possibilities/ and which we find in school, on another hand, /for example microscopes for scientific research work and microscopes for educational aims, which are in service for acquiring anatomic knowledge./ A question arises whether the student training to be a teacher on Biology has to be educated to work with educational microscopes, or he does not. The answer is affirmative, because under school conditions he himself is to be able to work with such technology and not to be shown by a monitor and camera how to work with such microscopes. The work with such technology /adapte for the necessities of the schools/ is matered in the so called teacher's practical work or in the hours for methods and technology of school experience. The number of school periods for teacher's practical work for students training for teachers on the natural mathematic cycle of subjects, for example, varies from 60 to 120 school periods. These school periods are set in two or more semesters. By order of the Ministry of Public Education in the curriculum of every higher educational institution where teachers are trained, 30 teaching periods are included for education of students training for teachers with educational technology, mostly audio-visual. The future teachers make themselves familiar with the work of the aspectomate, diascopes, episcopes, overhead projector work with the camera /Slavijanka for 16 mm and Pleven - for 30 mm/i.e. with the technology that is to be found in every school and that would be used more often by every teacher/. The education for work with educational technology ends with taking an examination and handing over a special document regulating the capacity of its owner to work with the enumerated technology. We are of the opinion that the future teacher has to become familiar by corresponding activities with the work of the audio-visual devices illustrating the work of the same audio-visual devices.

1.3.2.2. The teachers together with the students - laboratory assistants or with those of the circles or the qualificated for the purpose persons use visual tape recorder with monitor, visual monitor with camera when exercising or practising in schools. With the help of that technology, as is well known, possibilities are acquired for synchronized analyses without confusing the pupils or the students giving their first lesson. We accept as rather longterm the usage of video monitor in acquiring professional habits and skills during the time of the probationary practice. In future this practice will continue the whole school year, respectively the role and the significance of audio-visual technology will increase and it will satisfy different necessities in acquiring professional habits. The quantity of the visual monitor technology in the different higher educational institutions in our country, as well as the teachers trained to work with it is different and in particular places quite insufficient. Having in mind, that the expenses given for buying technical means of education, including audio-visual technology increases every year, there is no doubt that in the near future this technology will find its place in every higher educational institution, where teachers are trained. Of course, we do not have a final answer to the question yet, what technology and for what kind of activity of the future teacher is intended, i.e. whether it makes their training more effective. The audio-visual means, the educational films and the video tape recordings theoretically eliminate the vacuum - the technical vacuum in education to a great extend, but they leave unsolved questions which are not secondary unsolved theoretically, such as whether it is advisable in every case to extend the time for observing, an especially important problem for individual work of the student during the observation of films, video tape recordings by audio visual means, controlling of the educational process and many others. In training teaching personnel we lean upon another technology as well, for example microcomputer, etc. For controlling educational work, for example, of the students training for teacher not on wide plan in present, are used the equipments: REMS /PRB/, UNITUTOR /CSSR/, the examination of the ROBOTRON-C -1001 /GDR/ is in prospect. The technology connected with the control of the knowledge and skill of future teachers will be utilized much more in the organization of the educational process. We are not adherents to every technology, every educational film and video tape recording, but only to those that correspond to the aims of the training of teaching personnel. More and more technology will be necessary in the organization of the scientific research work of the students, as well as future teachers with themes of the educational sphere. And as far as the training machines are insufficient yet, only for laboratory research, while the electronic computers /ELKA, IZOT-250 with the disc mechanism belonging to it etc/ find an appropriate place in the statistic treatment of empiric data, when we use dispersive analyses or other models for the statistic treatment of data depending on the research of the student - the future teacher. Concerning the use of the training machines in education or for education, the problem does not pertain to them only, but first of all to the creation of advisable training programs, evidently increasing the effectivity of the educational process carried out.

2. As we respect and pay tribute to the achievements of the host country /HPR/ and to the other participant countries at the conference it seemed abvisable to us that it will be useful to take practical decisions and an integral programme for activity connected with the training of future teachers in the light of the theme of the conference.

Some of the problems, which could be an object of discussion, in our opinion, are:

2.1. Forming of working groups /council/ in whose staff beside teachers, psychologists, sociologist should enter and at last find their place the representatives of the methodological field. Increasing the effectivity of training in separate subjects /branches of science/ does not concern only the teachers and the psychologists. The results of pedagogical and psychological research could acquire industrial significance only if they are applied by field methods for education in higher educational institutions. When not in conformity with the methodical requirements, educational films and visual tape recordings as well as the educational technology, for example on theoretically created training programme, could be used partly and in some cases they could be unused. The working group or the council will regulate the aims and of their basing will make a programme for coordinated activity. We should not forget that the technology and the educational films and the video tape recordings elucidate the educational process from their angle, if we apply the requirements of systematic structural analyses in its appraisal. The activity of this working group could be coordinated with the working group of engineer-constructors, designers and ergonomists. Only with such coordination is it possible to give a precise account of the theoretical basis of the educational process, with its components and elements and eventually to affect the construction respectively of the next production of educational technology /training appliances/ including audio visual ones.

2.2. Improvement of the system for the exchange of information should not be isolated and for particular technical means or educational film and video tape recording, but complex, periodic.

2.3. Validity of the approximate programme for training teachers in higher educational institutions for work with technical means of education /in several variants/.

As we appreciate highly the significance of the present conference and the activity of UNESCO in the sphere of education, I could express the hope that the way to the theoretically motivated practice of training students preparing to be teachers will be passed more quickly with a corresponding scientifically grounded place of technical means for education in the educational process.

Once more I thank you for the possibility given to me to express my opinion on the theme of the conference.

IX. CONTENTS

Page

I. Organization of the Conference 1
II. Welcoming speech of László Szalay 2
III. Opening speech of Imre Miklós 5
IV. Andri Isaksson 8
V. Election of the Chair 9

VI. Papers presented

Sándor Orosz 9
Christer Brusling 11
Hans-Georg Heun 14
Walter Zifreund 16
VII. Contributions 18
Christian Miesch 19
Klaus Kroll 2o
Olavi Nöjd 2o
Erkki Komulainen 21
Alexandr Panajotov 21
Margaret Jensen 21
Zoltán Gárdai 22
Róbert Kozma 22
György Appel 24
Ferenc Poór 24
Miklós Magyar 26
VIII. Conclusions, recommendations 26

Appendices

1. Participants of the Conference 3o

Text of papers and contributions

2. Andri Isaksson: UNESCO and Educational Technology in Teacher Training 32
3. Sándor Orosz: Design and Production of Educational Materials for the Modernization of Teacher Training in the Szombathely Teacher Training College 41

4. Christer Brusling: Notes on Educational Technology and the Use of Videotechniques in Sweden 53
5. Hans-Georg Heun: The Use of Educational Television in Teacher Training in the European Socialist Countries, Presented Through the Example of the GDR 61
6. Walter Zifreund: The Main Trends in Educational Technology, and in the Use of Video Techniques in the West-European Countries 67
7. Christian Miesch: Design and Preparation of Videorecordings for Teaching Educational Sciences 77
8. Stefan Pozlep: Brief Report on the Electronic Classroom of the Maribor Pedagogical Academy 86
9. Olavi Nöjd et al.: The Analysis of Critical Incidents in Teaching 90
1o. Margaret Jensen: Classroom Situations 94
11. Róbert Kozma: Some Questions on the Utilization of AV Technique and the Development of Educational Technology in Teacher Training 101
12. György Appel: Ways for Unification of Methods and Educational Technology of Teacher Training and In-service Training with the Use of Video Technique and Computer Systems 108
13. Ferenc Poór: One of the Forms of Developing Pedagogical Abilities Using Video at the Szombathely Teacher Training College 113
14. Miklós Magyar: A Basic Factor of Vocational Training is the Instructor-Experimental Programme for Developing Pedagogical Abilities with Video 122
15. Lajos Szabados: Some Possibilities of Using the Videorecorder in Teaching Didactics 129

16. Klaus Kroll: The Utilization of Videorecordings in the GDR in Higher Education and Especially in Teacher Training 133
17. Alexandr Panajotov: Technology in Service to the Training of Future Teachers 136

IX. Contents 142